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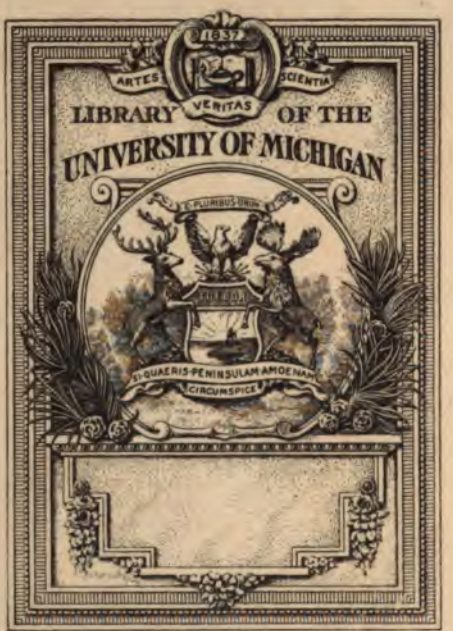
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OBSTETRICAL TRANSACTIONS.

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VOL. XXXII.

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OBSTETRICAL SOCIETY

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LONDON.

VOL. XXXII.

FOR THE YEAR 1890.

WITH A LIST OF OFFICERS, FELLOWS, ETC.

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ALBAN DORAN, SENIOR SECRETARY,

AND

F. H. CHAMPNEYS, M.D.

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1871 KEILLER, ALEXANDER, M.D., F.R.S. Ed., Physician to the Royal Maternity Hospital, Lecturer on Midwifery and Diseases of Women and Children at Surgeons' Hall, Edinburgh; 21, Queen street, Edinburgh.

1871 KIDD, GEORGE H., M.D., F.R.C.S.I., Obstetrical Surgeon to the Coombe Lying-in Hospital; 30, Merrion square south, Dublin.

1870 WEST, CHARLES, M.D., F.R.C.P., Foreign Associate of the Academy of Medicine of Paris; 55, Harley street, W. *Pres.* 1877-8.

FOREIGN SUBJECTS.

1872 BARKER, FORDYCE, M.D., Professor of Clinical Midwifery and Diseases of Women at the Bellevue Hospital Medical College, and Obstetric Physician to the Bellevue Hospital; 85, Madison avenue, New York.

Elected

1863 Braun von Fernwald, Carl, M.D., Professor of Midwifery, Vienna.

1866 Hugenberger, Theodor, M.D., à la Maternité, et aux Enfants Trouvés ; Hôpital des Accouchements, Moscow.

1866 Lazarewitch, J., M.D., Professor Emeritus and Physician to the Maximilian Hospital ; Spaskaja, 2, St. Petersburg. *Trans.* 3.

1864 Pajot, Ch. M.D., late Professor of Midwifery to the Faculty of Medicine, Paris.

1862 Scanzoni, F. W. von, M.D., Würzburg.

1877 Stoltz, Professor, M.D. Nancy.

1891 Tarnier, Stéphane, M.D., Professor of Obstetrics, Faculté de Médecine de Paris.

1872 Thomas, T. Gaillard, M.D., Professor of Obstetrics in the College of Physicians and Surgeons ; 296, Fifth avenue, New York.

1862 Virchow, Rudolf, M.D., Professor of Pathological Anatomy in the University of Berlin.

CORRESPONDING FELLOWS.

1873 Martin, A. E., M.D., Berlin. *Trans.* 1.

1876 Budin, P., M.D., 129, Boulevard St. Germain, Paris. *Trans.* 1.

1876 Chadwick, James R., M.A., M.D., Physician for Diseases of Women, Boston City Hospital ; Clarendon street, Boston, Massachusetts, U.S.

1877 Goodell, William, A.M., M.D., Professor of Gynecology in the University of Pennsylvania ; 1418, Spruce street, Philadelphia, Pennsylvania.

1876 Lusk, William Thompson, M.D., Professor of Obstetrics, Bellevue Hospital Medical College ; New York.

1877 Storer, Horatio R., M.D., Newport, Rhode Island, U.S.A.

ORDINARY FELLOWS.

1891.

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1887 ACHARD, ALEXANDER LOUIS, M.D., 10, Blandford street, Portman square, W.

1890 ACKERLEY, RICHARD, M.B., B.S.Oxon., Alexandra House, Ashburton, Devon.

1884 ADAMS, THOMAS RUTHERFORD, M.D., Stamford House, 78, St. James's road, Croydon.

1890 ADDINSELL, AUGUSTUS W., M.B., C.M.Edin., 30, Ashburn place, South Kensington, S.W.

1883 ALLAN, ROBERT JOHN, L.R.C.P.Ed., The Glen, Summer hill, Sydney, New South Wales. [Per Alexander Allan, Esq., Glen House, The Valley, Scarborough.]

1890 ALLAN, THOMAS E., L.R.C.P. & S.Ed., 7, Salford terrace, Tonbridge.

1873 ALLEN, HENRY MARCUS, F.R.C.P. Ed., 20, Regency square, Brighton.

1887 AMBROSE, ROBERT, B.A., L.R.C.P. & S.Ed., 1, Mount place, Whitechapel road, E.

1878 ANDERSON, IZETT WILLIAM, M.D., 95, Duke street, Kingston, Jamaica. *Trans.* 1. *Hon. Loc. Sec.*

1875 ANDERSON, JOHN FORD, M.D., C.M., 1, Buckland crescent, Belsize park, N.W. *Council*, 1882.

Elected

1866* ANDREWS, HENRY CHARLES, M.D., 11, Addison terrace, Notting hill, W. *Council*, 1882-3.

1859 ANDREWS, JAMES, M.D., Everleigh, Green hill, Hampstead, N.W. *Council*, 1881.

1888 ANNACKER, ERNEST, M.D., Berlin, 292, Oxford road, Manchester.

1890 ANSON, GEORGE EDWARD, M.A., M.D.Cantab., St. Thomas's Hospital, S.E.

1884 APPLEFORD, STEPHEN HERBERT, L.R.C.P. Lond., 17, Finsbury circus, E.C.

1870 APPLETON, ROBERT CARLISLE, The Bar House, Beverley.

1884 APPLETON, THOMAS A., 46, Britannia road, Fulham, S.W.

1883 ARCHIBALD, JOHN, M.D., Woodhouse Eaves, Loughborough.

1871 ARGLES, FRANK, L.R.C.P. Ed., Hermon Lodge, Wanstead, Essex, N.E. *Council*, 1886-7.

1888 ARMSTRONG, JAMES, M.B. Edin., 84, Rodney street, Liverpool.

1886 ASHE, WILLIAM PERCY, L.R.C.P. Lond., Ivy Bank, Chislehurst.

O.F. AVELING, JAMES H., M.D., Consulting Physician to the Chelsea Hospital for Women; 1, Upper Wimpole street, W. *Council*, 1865-66, 1872, 1884. *Hon. Sec.* 1873. *Hon. Lib.* 1874-6. *Vice-Pres.* 1877-8. *Board Exam. Midwives*, 1872, 1875-77, *Chairman*, 1878-83. *Trans.* 9.

1872 AYLING, ARTHUR H. W., 94A, Great Portland street, W.

1887 BAILEY, HENRY FREDERICK, The Hollies, Lee terrace, Lee, S.E.

1887 BAKER, OSWALD, L.R.C.P. & S. Ed., Surgeon-Major, Indian Army, Simla, India.

1880 BALLS-HEADLEY, WALTER, M.D., F.R.C.P., 5, Collins street east, Melbourne, Victoria.

1869* BANTOCK, GEORGE GRANVILLE, M.D., Surgeon to the Samaritan Free Hospital; 12, Granville place, Portman square, W. *Council*, 1874-6. *Trans.* 2.

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1886* Barbour, A. H. Freeland, M.D. Edin., 24, Melville street, Edinburgh.

O.F. Barnes, Robert, M.D., F.R.C.P., Consulting Obstetric Physician to St. George's Hospital; 15, Harley street, Cavendish square, W. *Vice-Pres.* 1859-60. *Council*, 1861-62, 1867. *Treas.* 1863-64. *Pres.* 1865-66. *Trans.* 32. *Trustee.*

1875 Barnes, R. S. Fancourt, M.D., Physician to the Chelsea Hospital for Women; 7, Queen Anne street, Cavendish square, W. *Council*, 1879-81. *Board Exam. Midwives*, 1880-2. *Trans.* 2.

1877 Barnes, Thomas Henry, M.D., 105, London road, Croydon.

1884 Barraclough, Robert W. S., M.D., 34, Dulwich road, Herne hill, S.W.

1887 Barton, Henry Thomas, 63, Harford street, E.

1887 Barton, William Edwin, L.R.C.P. Lond., Staunton-on-Wye, near Hereford.

1861* Bartrum, John S., F.R.C.S., Surgeon to the Bath General Hospital; 13, Gay street, Bath. *Council*, 1877-9.

1866 Bassett, John, M.D., Professor of Midwifery at the Queen's College, Birmingham; 144, Hockley hill, Birmingham. *Council*, 1874-6. *Vice-Pres.* 1880-2. *Trans.* 3.

1873 Bate, George Paddock, M.D., 412, Bethnal Green road, N.E.; and 2, Northumberland Houses, King Edward road, Hackney. *Council*, 1882-4.

1887 Baumgartner, Henry Spelman, M.B. Durh., Saville place, Newcastle-on-Tyne.

1871 Beach, Fletcher, M.B., F.R.C.P., Darenth Asylum, Dartford, Kent.

1871 Beadles, Arthur, Park House, Dartmouth Park, Forest hill, S.E.

1885 Beatty, William John, L.R.C.P. Ed., Stockton-on-Tees.

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1873* BENNET, JAMES HENRY, M.D., Mentone. *Council*, 1881-3. *Trans.* 1.

1889 BENSON, MATTHEW, M.D.Brux., 35, Dicconson street, Wigan.

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1887 BESWICK, ROBERT, 161, Bishopsgate street Without, E.C.

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1868* BLACK, JAMES WATT, M.A., M.D., Obstetric Physician to the Charing Cross Hospital; 15, Clarges street, Piccadilly, W. *Council*, 1872-4. *Vice-Pres.* 1885-6. *Chairman, Board Exam. Midwives*, 1887-90. *Pres.* 1891.

1861* BLAKE, THOMAS WILLIAM, Hurstbourne, Bournemouth, Hants.

1872 BLAND, GEORGE, Surgeon to the Macclesfield Infirmary Park Green, Macclesfield.

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1886 Boustead, Robinson, M.D., Surgeon-Major, Indian Army, c/o Messrs. H. S. King and Co., 45, Pall Mall, S.W.

1877 Bowkett, Thomas Edward, 145, East India road, Poplar, E. *Council*, 1890.

1884* Boxall, Robert, M.D., Assistant Obstetric Physician to, and Lecturer on Practical Midwifery at, the Middlesex Hospital; 6, Chandos street, Cavendish square, W. *Council*, 1888-90. *Board Exam. Midwives*, 1891. *Trans.* 10.

1890 Boycott, Arthur Norman, L.R.C.P. Lond., Cane hill, Purley, Surrey.

1884 Boys, Arthur Henry, L.R.C.P. Ed., Chequer Lawn, St. Albans.

1886 Bradbury, Harvey K., 7, Horninglow street, Burton-on-Trent.

1877 Bradley, Michael McWilliams, M.B., Jarrow-on-Tyne.

1873 Braithwaite, James, M.D., Obstetric Physician to the Leeds General Infirmary; Lecturer on Diseases of Women and Children at the Leeds School of Medicine; 16, Clarendon road, Little Woodhouse, Leeds. *Vice-Pres.* 1877-9. *Trans.* 4. *Hon. Loc. Sec.*

1880 Branfoot, Arthur Mudge, M.B., Superintendent of the Government Lying-in Hospital, Madras, and Professor of Midwifery and Diseases of Women and Children in the Madras Medical College, Pantheon road, Madras. *Hon. Loc. Sec.*

1887 Bridger, Adolphus Edward, M.D. Ed., 16, Orchard street, Portman square, W.

1872 Bridgwater, Thomas, M.B., Harrow-on-the-hill, N.W. *Council*, 1884.

1888* Briggs, Henry, M.B., F.R.C.S., 17, Rodney st., Liverpool.

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1885 BRISCOE, JOHN FREDERICK, The Lammas, Esher, Surrey.

1887 BRODIE, FREDERICK CARDEN, M.B., Oak street, Fakenham, Norfolk.

1866 BRODIE, GEORGE B., M.D., Consulting Physician-Accoucheur to Queen Charlotte's Lying-in Hospital; 3, Chesterfield street, Mayfair, W. *Council*, 1873-75. *Vice-Pres.*, 1889.

1889 BROOK, WILLIAM HENRY B., M.B. Lond., F.R.C.S., County Hospital, Lincoln.

1876 BROOKHOUSE, CHARLES TURING, M.D., 43, Manor road, Brockley, S.E.

1889 BROWN, ALFRED, M.A., M.B., C.M. Aber., Claremont, Higher Broughton, Manchester.

1868 BROWN, ANDREW, M.D. St. And., 1, Bartholomew road, Kentish town, N.W. *Trans.* 1.

1865 BROWN, D. DYCE, M.D., 29, Seymour street, Portman square, W.

1889* BROWN, WILLIAM CARNEGIE, M.D. Aber., Penang, China.

1876 BRUNJES, MARTIN, 33A, Gloucester place, Portman square, W.

1865 BRUNTON, JOHN, M.D., M.A., Surgeon to the Royal Maternity Charity; 21, Euston road, N.W. *Council*, 1871-3. *Vice-Pres.* 1882-4. *Board Exam. Midwives*, 1877-82. *Trans.* 6.

1883 BUKSH, RAHEEM, Liverpool House, Balaam street, Plaistow, E.

1882* BULLER, AUDLEY CECIL, M.D., Oxford and Cambridge Club, Pall Mall, S.W.

1885* BUNNY, J. BRICE, L.R.C.P. Ed., Newbury.

1877 BURCHELL, PETER LODWICK, M.B., Delamers, Bradwell-on-Sea, Southminster, S.O., Essex. *Council*, 1882-4. *Vice.-Pres.* 1885-7. *Board Exam. Midwives*, 1884-7. *Trans.* 1.

1877 BURD, EDWARD, M.D., M.C., Senior Physician to the Salop Infirmary; Newport House, Shrewsbury. *Council*, 1886-7. *Hon. Loc. Sec.*

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1888 Burton, Herbert Campbell, L.R.C.P. Lond., Lee Park Lodge, Blackheath, S.E.

1878 Butler-Smythe, Albert Charles, M.R.C.P.Ed., 76, Brook street, Grosvenor square, W. *Council*, 1889-91.

1868 Butt, William Frederick, L.R.C.P. Lond., 48, Park street, Grosvenor square, W. *Council*, 1876-78.

1887* Buxton, Dudley W., M.D. Lond., 82, Mortimer street, Cavendish square, W.

1886 Byers, John W., M.D., Physician for Diseases of Women to the Royal Hospital, Belfast; Lower crescent, Belfast.

1883 Caldwell, William T. D., M.D., 209, Brixton road, S.W.

1887 Cameron, James Chalmers, M.D., Professor of Midwifery and Diseases of Infancy, McGill University; 941, Dorchester street, Montreal.

1887 Cameron, Murdoch, M.D. Glas., 7, Newton terrace, Charing Cross, Glasgow.

1888* Campbell, William Macfie, M.D. Edin., 1, Princes gate East, Liverpool.

1861 Candlish, Henry, M.D., 6, Barns street, Ayr, N.B.

1886 Carpenter, Arthur Bristowe, M.A., M.B. Oxon., Wykeham House, Bedford park, Croydon.

1872 Carter, Charles Henry, M.D., Physician to the Hospital for Women, Soho square; 45, Great Cumberland place, Hyde park, W. *Council*, 1880-2. *Trans.* 4.

1890 Carter, Robert James, M.B. Lond., Lock Hospital, Dean street, Soho, W.C.

1877 Carver, Eustace John, 3, Fulham park villas, Fulham, S.W.

1887 Case, William, 34, Westbourne road, Arundel square, N.

1869 Caskie, John Boyd, M.D., 19, Tyndale place, Islington, N.

1863 Cayzer, Thomas, Mayfield, Aigburth, Liverpool.

1875 Chaffers, Edward, F.R.C.S., 54, North street, Keighley, Yorkshire.

Elected

1876* Champneys, Francis Henry, M.A., M.D. Oxon., F.R.C.P., Physician-Accoucheur to, and Lecturer on Midwifery at,St. Bartholomew's Hospital, 60, Great Cumberland place, W. *Council*, 1880-1. *Hon. Lib.* 1882-3. *Hon. Sec.* 1884-7. *Vice-Pres.* 1888-90. *Board Exam. Midwives*, 1883, 1888-90; *Chairman*, 1891. *Trans.* 16.

1859 Chance, Edward John, F.R.C.S., Surgeon to the Metropolitan Free Hospital and City Orthopædic Hospital; 14, Russell square, W.C.

1886 Chapman, Charles William, M.D., 23, Fitzjohn's avenue, Hampstead, N.W.

1867* Charles, T. Edmondstoune, M.D., Cannes, France. *Council*, 1882-4.

1874 Charlesworth, James, 25, Birch terrace, Hanley, Staffordshire.

1886 Charpentier, Ambrose E. L., M.D. Durh., 60, High street, Uxbridge.

1868* Child, Edwin, "Vernham," New Malden, Kingston-on-Thames, Surrey.

1890 Childe, Charles Plumley, B.A., L.R.C.P. Lond., Camden House, Kent road, Southsea.

1883 Childs, Christopher, M.A., M.D. Oxon., 2, Royal terrace, Weymouth. *Hon. Loc. Sec.*

1863* Chisholm, Edwin, M.D., Abergeldie, Ashfield, near Sydney, New South Wales. [Per Messrs. Turner and Henderson, care of Messrs. W. Dawson, 121, Cannon street, E.C.].

1885 Chittenden, Thomas Hillier, L.R.C.P. Lond., Garden House, Wheathampstead, Herts.

1883 Clapham, Edward, M.D., 29, Lingfield road, Wimbledon.

1859 Claremont, Claude Clarke, Millbrook House, 1, Hampstead road, N.W.

1879 Clarke, Reginald, South Lodge, Lee park, Lee, S.E.

O.F. Clay, Charles, M.D., Tower Lodge, Poulton-le-Fylde, Lancashire.

Elected

1876 CLAY, GEORGE LANGSFORD, West View, 443, Moseley road, Highgate, Birmingham.

O.F. CLAY, JOHN, Professor of Midwifery, Queen's College, Birmingham; Allan House, Steelhouse lane, Birmingham. *Council*, 1868-69. *Vice-Pres.* 1872-4.

1889 CLEMOW, ARTHUR HENRY WEISS, M.D., C.M. Edin., 2, Talgarth road, West Kensington, W.

O.F. CLEVELAND, WILLIAM FREDERICK, M.D., Stuart villa, 199, Maida vale, W. *Council*, 1863-64. *Vice-Pres.* 1875-77, 1887-89. *Trans.* 1.

1881 CLOSE, JAMES ALEX., M.B., P.O. Box 96, Summerfield, St. Clair Co., Illinois, U.S.

1865* COATES, CHARLES, M.D., Physician to the Bath General and Royal United Hospitals; 10, Circus, Bath.

1882 COATES, FREDERICK WILLIAM, M.D., St. John street, Salisbury. *Council*, 1891. *Hon. Loc. Sec.*

1878 COCKELL, FREDERICK EDGAR, Jun., 62, Forest road, Dalston, E.

1875 COFFIN, RICHARD JAS. MAITLAND, F.R.C.P. Ed., 98, Earl's Court road, W.

1878 COFFIN, THOMAS WALKER, 22, Upper Park road, Haverstock hill, N.W.

1875* COLE, RICHARD BEVERLY, M.D. Jefferson Coll. Philad., 218, Post street, San Francisco, California, U.S.

1888 COLLINS, EDWARD TENISON, Campden House, Oakfield road, Selly park, Birmingham.

1884 COLLINS, WILLIAM JOB, M.D., B.S., B.Sc. Lond., F.R.C.S. Eng., 1, Albert terrace, Gloucester gate, N.W.

1877 COLMAN, WALTER TAWELL, The Poplars, Deddington, Oxon.

1866 COOMBS, JAMES, M.D., Bedford.

1874 COOPER, HERBERT, L.R.C.P. Ed., Thurlow House, Hampstead, N.W.

1888 COOPER, PETER, L.R.C.P. Lond., Stainton Lodge, Blackheath, S.E.

Elected

1890 COPELAND, WILLIAM HENRY LAURENCE, M.B.Cantab., 59, Warwick road, Earl's Court, S.W.

1888 CORBY, HENRY, B.A., M.D., 62, South Mall, Cork.

1875* CORDES, AUG., M.D., M.R.C.P., Consulting Accoucheur to the "Miséricorde;" Privat Docent for Midwifery at the University of Geneva; 12, Rue Bellot, Geneva. *Trans.* 1.

1883 CORNER, CURSHAM, 113, Mile End road, E.

1888 CORNISH, CHARLES NEWTON, L.R.C.P. Ed., Bushey Heath, Herts.

1860* CORRY, THOMAS CHARLES STEUART, M.D., Senior Surgeon to the Belfast General Dispensary; Ormeau terrace, Belfast. *Council*, 1867. *Vice-Pres.* 1891. *Hon. Loc. Sec.*

1888 CORY, ISAAC RISING, L.R.C.P. Lond., Shere, Guildford.

1875 CORY, ROBERT, M.D., Assistant Obstetric Physician to St. Thomas's Hospital; 73, Lambeth Palace road, S.E. *Council*, 1879-81, 1884-5. *Vice-Pres.* 1887-88. *Trans.* 1.

1886 COX, JOSHUA JOHN, M.D. Ed., St. Ronan's, Clarendon road, Eccles, Manchester.

1869 COX, RICHARD, M.D. St. And., Theale, near Reading. *Trans.* 1.

1877 CRAWFORD, JAMES, M.D. Durh., 4, Iddesleigh Mansions, Victoria street, S.W.

1882 CREASE, JAMES ROBERTSON, F.R.C.S. Ed., 2, Ogle terrace, South Shields.

1881 CREASY, JAMES GIDEON, Rectory lodge, Brasted, Sevenoaks.

1883 CREMEN, PATRICK JOHN, M.D., 4, Camden place, Cork.

1876 CREW, JOHN, Manor House, Higham Ferrers, Northamptonshire.

1889 CROFT, EDWARD OCTAVIUS, L.R.C.P. Lond., 8, Clarendon road, Leeds.

1881 CRONK, HERBERT GEORGE, M.B. Cantab., Repton, near Burton-on-Trent.

Elected

1886* Cross, William Joseph, M.B., Horsham, Victoria, Australia.

1889 Crouch, Edward Thomas, Lee House, Stoke road, Gosport.

1875* Cullingworth, Charles James, M.D., F.R.C.P., Obstetric Physician to, and Lecturer on Obstetric Medicine at, St. Thomas's Hospital; 46, Brook street, Grosvenor square, W. *Council*, 1883-5, 1891. *Vice-Pres.* 1886-8. *Board Exam. Midwives*, 1889-91. *Trans.* 7.

1859 Curgenven, J. Brendon, Teddington Hall, Teddington, S.W. *Council*, 1870-72. *Trans.* 3.

1889* Cursetji, Jehángir J., M.D. Brux., 94, Chundunwádi, Bombay.

1885 Dakin, W. Radford, M.D., Obstetric Physician to, and Lecturer on Midwifery at, St. George's Hospital; 57, Welbeck street, Cavendish square, W. *Council*, 1889-91. *Trans.* 2.

1868 Daly, Frederick Henry, M.D., 185, Amhurst road, Hackney Downs, N.E. *Council*, 1877-9. *Vice-Pres.* 1883-5. *Trans.* 2.

1882 Dambrill-Davies, William R., Alderley Edge, Cheshire.

1888 Dane, Robert, Singapore, Straits Settlements.

1884 Darwin, George Henry, M.R.C.P., The Cedars, Albert park, Didsbury, near Manchester.

1889 Davies, Frederick Henry, M.B., C.M. Edin., Tilbury, Essex.

1876 Davies, Gomer, L.R.C.P. Ed., 9, Pembridge villas, Bayswater, W.

1884 Davies, John, 91, New North road, N.

1885 Davies, William Morriston, M.D., 55, Gordon square, W.C.

1877 Davson, Smith Houston, M.D., Campden villa, 203, Maida vale, W. *Council*, 1889-91.

1891 Dawson, Ernest, L.R.C.P.Lond., The Mount, Hampstead, N.W.

Elected

1889 DAWSON, WILLIAM EDWARD, L.K.Q.C.P. & L.M., 83, Chiswell street, E.C.

1878 DAY, EDMUND OVERMAN, Assistant Surgeon to the Royal Infirmary for Children and Women, Waterloo Bridge road; 78, Waterloo road, S.E.

1880 DAY, WILLIAM HANKES, Surgeon to the City Prisons, Norwich; 3, Surrey street, Norwich. *Trans.* 1.

1859 DAY, WILLIAM HENRY, M.D., Physician to the Samaritan Free Hospital for Women and Children; 10, Manchester square, W. *Council*, 1873-75. *Vice-Pres.* 1885-6.

1889 DES VŒUX, HAROLD A., M.D. Brux., 11, Carlisle Mansions, Ashley place, Victoria street, S.W.

1877 DEWAR, JOHN, L.R.C.P. Ed., 132, Sloane street, S.W.

1885 D'MONTE, DOMINICK A., M.D., Bandora, Bombay.

1887 DODSON, ARTHUR EDWARD, L.R.C.P. and L.M. Ed., Windermere villas, Earlsfield, Tooting, S.W.

1879 DOLAN, THOMAS MICHAEL, M.D., Horton house, Halifax.

1886 DONALD, ARCHIBALD, M.A., M.D. Edin., 274, Oxford road, Manchester. *Trans.* 1.

1879 DORAN, ALBAN H. G., F.R.C.S., Surgeon to the Samaritan Free Hospital; 9, Granville place, Portman square, W. *Council*, 1883-5. *Hon. Lib.* 1886-7. *Hon. Sec.* 1888-91. *Trans.* 10.

1890 DOUTY, EDWARD HENRY, M.A., M.B., B.C. Cantab., 69, Bridge street, Cambridge.

1887 DOVASTON, MILWARD EDMUND, 81, Queen's crescent, Haverstock hill, N.W.

1880 DOWNES, DENIS SIDNEY, L.K.Q.C.P. I., 55, Kentish town road, N.W.

1884 DOYLE, E. A. GAYNES, L.R.C.P., Colonial Hospital, Port of Spain, Trinidad.

O.F. DRAGE, CHARLES, M.D., Hatfield, Herts. *Council*, 1861-4. *Trans.* 1.

Elected

1885 DRAGE, LOVELL, M.A., M.B., B.S. (Oxon), Burleigh Mead, Hatfield.

1871 DRAKE-BROCKMAN, EDWARD FORSTER, F.R.C.S., L.R.C.P. Lond., Surgeon-Major; Superintendent Eye Infirmary, Madras; Professor of Physiology and Ophthalmology, Madras Medical College. [*Per* Messrs. Richardson and Co., East India Army Agency, 25, Suffolk street, Pall Mall, S.W.]

1884 DRAKE, CHARLES HENRY, 204, Brixton hill, S.W.

1884 DUKE, JOHN C., The Glen, Lewisham, S.E.

1883 DUNCAN, ALEXANDER GEORGE, M.B., 25, Amhurst park, Stamford hill, N.E.

O.F. DUNCAN, JAMES, M.B., 8, Henrietta street, Covent garden, W.C. *Council*, 1873-74.

1888 DUNCAN, WILLIAM, L.R.C.P. & S.Ed., 17, Redland grove, Bristol.

1882 DUNCAN, WILLIAM, M.D., Obstetric Physician to, and Lecturer on Obstetric Medicine at, the Middlesex Hospital; 6, Harley street, W. *Council*, 1885-6, 1888-89. *Hon. Lib.* 1890-91. *Trans.* 2.

1871 EASTES, GEORGE, M.B., F.R.C.S., 35, Gloucester place, Hyde park, W. *Council*, 1878-80.

1883 ECCLES, F. RICHARD, M.D., Professor of Physiology, Western University; 1, Ellwood place, Queen's avenue, London, Ontario, Canada.

1890 EHRMANN, ALBERT, L.R.C.P.Lond., Bitterne, near Southampton.

1879 ELDER, GEORGE, M.D., C.M., Surgeon to the Samaritan Hospital for Women, Nottingham; 17, Regent street, Nottingham.

1878 ELLERY, RICHARD, L.R.C.P. Ed., Plympton, Devon.

1873 ENGELMANN, GEORGE JULIUS, A.M., M.D., 3003, Locust street, St. Louis, Missouri, U.S.

Elected

1884 ENGLISH, THOMAS JOHNSTON, M.D., 128, Fulham road, S.W.

1875 EWART, JOHN HENRY, Eastney, Devonshire place, Eastbourne.

1876 FARNCOMBE, RICHARD, 40, Belgrave street, Balsall heath, Birmingham.

1869 FARQUHAR, WILLIAM, M.D., Deputy Surgeon-General, Coonoor, Neilgherries, Madras.

1861 FARR, GEO. F., L.R.C.P. Ed., Slade House, 175, Kennington road, S.E. *Council*, 1885.

1882 FARRAR, JOSEPH, M.D., Gainsborough.

1868* FEGAN, RICHARD, M.D., Westcombe park, Blackheath, S.E.

1888 FEGEN, CHARLES MILTON, Devonshire House, Brandon, Suffolk.

1886 FENNELL, DAVID, L.K.Q.C.P.I., 4, St. Anne's Villas, Notting hill, W.

1883 FENTON, HUGH, M.D., 27, George street, Hanover square, W.

1886 FISHER, FREDERICK BAZLEY, L.R.C.P. Lond., West Walk, Dorchester.

1882 FITZGERALD, CHARLES EGERTON, M.D., West Terrace, Folkestone. *Hon. Loc. Sec.*

1877* FONMARTIN, HENRY DE, M.D., 1, Anchor Gate terrace, Portsea.

1884 FORD, ALEXANDER, L.R.C.P. Ed., 9, Beresford street, Waterford.

1877* FORD, JAMES, M.D., Eltham, Kent.

1884 FOURACRE, ROBERT PERRIMAN, 20, Tollington park, N.

1886 FOWLER, CHARLES OWEN, M.D., Trevor Lodge, Thornton heath, S.W.

1875* FRASER, ANGUS, M.D., Physician and Lecturer on Clinical Medicine to the Aberdeen Royal Infirmary; 232, Union street, Aberdeen.

1888 FRASER, JAMES ALEXANDER, L.R.C.P. Lond., Western Lodge, Romford.

Elected

1867 FREEMAN, HENRY W., 24, Circus, Bath. *Council*, 1891.

1880 FRY, JOHN BLOUNT, Ashley Lodge, Esher, Surrey.

1883 FULLER, HENRY ROXBURGH, M.D. Cantab., 45, Curzon street, Mayfair, W. *Trans.* 1.

1886 FURNER, WILLOUGHBY, F.R.C.S., 2, Brunswick place, West Brighton. *Hon. Loc. Sec.*

1874* GALABIN, ALFRED LEWIS, M.A., M.D., Obstetric Physician to, and Lecturer on Midwifery at, Guy's Hospital; 49, Wimpole street, Cavendish square, W. *Council*, 1876-78. *Hon. Lib.* 1879. *Hon. Sec.* 1880-3. *Vice-Pres.* 1884. *Treas.* 1885-8. *Pres.* 1889-90. *Trans.* 12.

1888 GALLOWAY, ARTHUR WILTON, L.R.C.P. Lond., 79, New North road, N.

1863 GALTON, JOHN H., M.D., Chunam, Sylvan road, Upper Norwood, S.E. *Council*, 1874-6, 1891.

1881 GANDY, WILLIAM, Hill Top, Central hill, Norwood, S.E.

1886 GARDE, HENRY CROKER, F.R.C.S. Edin., Maryborough, Queensland.

1887 GARDINER, BRUCE H. J., L.R.C.P. Ed., Gloucester House, Barry road, East Dulwich, S.E.

1879 GARDNER, JOHN TWINAME, 6, Hillsboro' terrace, Ilfracombe.

1872 GARDNER, WILLIAM, M.A., M.D., Professor of Gynæcology, McGill University; Gynæcologist to the Montreal General Hospital; 109, Union avenue, Montreal, Canada.

1876 GARNER, JOHN, 52, New Hall street, Birmingham.

1873 GARTON, WILLIAM, M.D., F.R.C.S., 58, Bagot street, Wavertree, near Liverpool.

1889* GELL, HENRY WILLINGHAM, M.A., M.B. Oxon., 43, Albion street, Hyde park, W.

1859* GERVIS, HENRY, M.D., F.R.C.P., Consulting Obstetric Physician to St. Thomas's Hospital; 40, Harley street, Cavendish square. *Council*, 1864-66, 1889-91. *Hon. Sec.* 1867-70. *Vice-Pres.* 1871-3. *Treas.* 1878-81. *Pres.* 1883-4. *Trans.* 8.

Elected

1866* GERVIS, FREDERICK HEUDEBOURCK, 1, Fellows road, Haverstock hill, N.W. *Council*, 1877-9. *Trans.* 1.

1884 GIBB, CHARLES JOHN, M.D., Westgate House, Newcastle-on-Tyne.

1875 GIBBINGS, ALFRED THOMAS, M.D., 93, Richmond road, Dalston, N.E. *Council*, 1885-6, 1888.

1883 GIBBONS, ROBERT ALEXANDER, M.D., Physician to the Grosvenor Hospital for Women and Children; 29, Cadogan place, S.W. *Council*, 1889-90. *Trans.* 1.

1874 GIBSON, JAMES EDWARD, Hillside, West Cowes, Isle of Wight.

1869 GILL, WILLIAM, L.R.C.P. Lond., 11, Russell square, W.C.

1871 GODDARD, EUGENE, M.D. Durh., North Lynne, Highbury New Park, N. *Trans.* 1.

1871 GODSON, CLEMENT, M.D., C.M.; 9, Grosvenor street, W. *Council*, 1876-77. *Hon. Sec.* 1878-81. *Vice-Pres.* 1882-4. *Board Exam. Midwives*, 1877, 1882-86. *Trans.* 5.

1868 GODWIN, ASHTON, M.D., 28, Brompton crescent, Brompton, S.W.

1883 GORDON, JOHN, M.D., 20, Wickham road, Brockley, S.E.

1869 GOSS, TREGENNA BIDDULPH, 1, The Circus, Bath. *Hon. Loc. Sec.*

1889 GOULLET, CHARLES ARTHUR, L.R.C.P. Lond., 2, Finchley road, N.W.

1890 GOW, WILLIAM JOHN, M.D.Lond., 49, Weymouth street, W.

1889 GRAHAM, ARTHUR, L.R.C.P. & S. Ed.

1885 GRANT, OGILVIE, M.D., Queen Mary's House, Inverness.

1890 GRAY, HARRY ST. CLAIR, M.D. Glas., 15, Newton terrace, Glasgow.

1875 GRAY, JAMES, M.D., 15, Newton terrace, Glasgow.

1890 GREEN, CHARLES DAVID, M.D.Lond., Addison House, Upper Edmonton.

1884 GREENE, WALTER, L.R.C.P. Lond., Wallingford.

Elected

1887 GREENWOOD, EDWIN CLIMSON, L.R.C.P., 19, St. John's wood park, N.W.

1863 GRIFFITH, G. DE GORREQUER, 34, St. George's square, S.W. *Trans.* 2.

1869 GRIFFITH, JOHN T., M.D., Talfourd House, Camberwell, S.E. *Council*, 1884-6.

1879* GRIFFITH, WALTER SPENCER ANDERSON, M.D. Cantab., F.R.C.S., M.R.C.P., Assistant Physician-Accoucheur to St. Bartholomew's Hospital; 114, Harley street, W. *Council*, 1886-8. *Board Exam. Midwives*, 1887-89. *Trans.* 3.

1870 GRIGG, WILLIAM CHAPMAN, M.D., Physician to the In-patients, Queen Charlotte's Lying-in Hospital; Assistant Obstetric Physician to the Westminster Hospital; 27, Curzon street, Mayfair. *Council*, 1875-77. *Board Exam. Midwives*, 1878-79.

1888* GRIMSDALE, THOMAS BABINGTON, B.A., M.B. Cantab., 50, Rodney street, Liverpool.

O.F. GRIMSDALE, THOS. F., L.R.C.P. Ed., Consulting Surgeon to the Lying-in Hospital; 29, Rodney street, Liverpool. *Council*, 1861-62. *Vice-Pres.* 1875-76.

1882 GRIPPER, WALTER, M.B. Cantab., The Poplars, Wallington, Surrey.

1880 GROGONO, WALTER ATKINS, Berwick House, Broadway, Stratford, E.

1879 GROVE, WILLIAM RICHARD, M.D., St. Ives, Huntingdonshire.

1887 GROWSE, WILLIAM, L.R.C.P. Lond., Marton, near Rugby.

1887 HACKNEY, JOHN, M.D. St. And., Oaklands, Hythe.

1867 HADAWAY, JAMES, L.R.C.P. Ed., Dent-de-Lion Villa, Garlinge, near Margate.

1881 HAIR, JAMES, M.D., Brinklow, Coventry.

1889 HALE, CHARLES D. B., M.D., 8, Sussex gardens, Hyde park, W.

1859 HALL, FREDERICK, 1, Jermyn street, St. James's, S.W.

Elected

1889 HALL, FREDERICK, M.D. St. And., St. Mark's House, Leeds.

1871 HALLOWES, FREDERICK B., Redhill, Reigate, Surrey. *Council*, 1885-6, 1888-90.

1880 HAMES, GEORGE HENRY, F.R.C.S., 2, Queensborough terrace, W.

1887 HAMILTON, JOHN, F.R.C.S.Ed., Beechhurst House, Swadlincote, Burton-on-Trent.

1883 HANDFIELD-JONES, MONTAGU, M.D.Lond., M.R.C.P., Joint-Lecturer on Midwifery at, and Physician-Accoucheur in charge of Out-patients to, St. Mary's Hospital; 24, Montagu square, W. *Council*, 887-89. *Trans.* 1.

1860 HARDEY, KEY, Surgeon to the West City Dispensary; 4, Wardrobe place, Doctors' Commons, E.C.

1889 HARDWICK, ARTHUR, M.D. Durh., Newquay, Cornwall.

1886 HARDY, HENRY L. P., Holly Lodge, Richmond road, Kingston-on-Thames.

1889 HARPER, CHARLES JOHN, L.R.C.P. Lond., Church end, Finchley, N.

1877 HARPER, GERALD S., M.B.Aber., 40, Curzon street, Mayfair, W.

1878 HARRIES, THOMAS DAVIES, F.R.C.S., Grosvenor House, Aberystwith, Cardiganshire.

1867* HARRIS, WILLIAM H., M.D., 78, Oxford gardens, W.

1861 HARRIS, WILLIAM JOHN, Church House, Heene, Worthing. *Hon. Loc. Sec.*

1880* HARRISON, RICHARD CHARLTON, 13, Sandringham gardens, Ealing, W.

1890 HART, DAVID BERRY, M.D.Edin., 29, Charlotte square Edinburgh.

1886 HARTLEY, HORACE, L.R.C.P. Ed., Stone, Staffordshire.

1886 HARTLEY, REGINALD, L.R.C.P. Ed., Kirkgate House, Thirsk.

1880 HARVEY, JOHN STEPHENSON, 1, Astwood road, Cromwell road, S.W.

Elected

1865 HARVEY, ROBERT, M.D., 52, Chowringhee, Calcutta. [Per Messrs. Cochran and Macpherson, 152, Union street, Aberdeen.] *Trans.* 1. *Hon. Loc. Sec.*

1886 HARVEY, SIDNEY FRED., L.R.C.P.Lond., 117A, Queen's Gate, S.W.

1888 HAYCOCK, HENRY EDWARD, L.R.C.P.Ed., Whitwell, Welwyn.

1873 HAYES, THOMAS CRAWFORD, M.A., M.D., F.R.C.P., Lecturer on Practical Midwifery at King's College; Obstetric Physician to King's College Hospital; 17, Clarges street, Piccadilly, W. *Council*, 1876-78. *Vice-Pres.* 1890-91.

1880 HEATH, WILLIAM LENTON, M.D., 88A, Cromwell road, Queen's gate, S.W. *Council*, 1891. *Trans.* 1.

1890 HELME, T. ARTHUR, M.D. Edin., St. Mary's Hospital, Manchester.

1867 HEMBROUGH, JOHN WILLIAM, M.D., Earsdon, Newcastle-on-Tyne.

1876* HERMAN, GEORGE ERNEST, M.B., F.R.C.P., Obstetric Physician to, and Lecturer on Midwifery at, the London Hospital; 20, Harley street, Cavendish square, W. *Council*, 1878-79. *Hon. Lib.* 1880-1. *Hon. Sec.* 1882-5. *Vice-Pres.* 1886-7. *Board Exam. Midwives*, 1886-88. *Treas.* 1889-91. *Trans.* 22.

O.F. HEWITT, GRAILY, M.D., F.R.C.P., F.R.S.Ed., Consulting Obstetric Physician to University College Hospital; 36, Berkeley square, W. *Hon. Sec.* 1859-64. *Treas.* 1865-66. *Vice-Pres.* 1867-68. *Pres.* 1869-70. *Trans.* 21.

1860* HICKS, JOHN BRAXTON, M.D., F.R.C.P., F.R.S., Physician-Accoucheur to, and Lecturer on Midwifery and Diseases of Women at, St. Mary's Hospital; 34, George street, Hanover square. *Council*, 1861-2, 1869. *Hon. Sec.* 1863-65. *Vice-Pres.* 1866-68. *Treas.* 1870. *Pres.* 1871-2. *Trans.* 37.

1860 HIGGS, THOMAS FREDERIC, M.D., Beaconsfield House, Dudley, Worcestershire.

Elected

1886 HOAR, CHARLES, M.B., C.M. Aber., Bantony House, Hurst Green, Hawkhurst (Railway Station Robertsbridge).

1886 HODGES, HERBERT CHAMNEY, L.R.C.P. Lond., Watton, Herts. *Trans.* 1.

O.F. HODGES, RICHARD, M.D., F.R.C.S., 36, Harewood square, N.W. *Trans.* 3.

1887 HODSON, HENRY ALGERNON, L.R.C.P. Ed. & L.M., 23, Brunswick square, Brighton.

1886 HOLBERTON, HENRY NELSON, L.R.C.P. Lond., East Molesey.

1875 HOLLINGS, EDWIN, M.D., 25, Endsleigh gardens, N.W. *Council*, 1888-90.

1886 HOLLOWAY, WILLIAM GEORGE, B.A., M.D. Cantab., East Sussex Hospital, Hastings.

1859 HOLMAN, CONSTANTINE, M.D., The Barons, Reigate, Surrey. *Council*, 1867-69. *Vice-Pres.* 1870-71.

1880 HONIBALL, OSCAR DUNSCOMBE, M.D., George Town, Demerara, British Guiana.

1864* HOOD, WHARTON PETER, M.D., 11, Seymour street, Portman square, W.

1872 HOPE, WILLIAM, M.D., Physician to Queen Charlotte's Lying-in Hospital; 56, Curzon street, Mayfair, W. *Council*, 1877-9. *Board Exam. Midwives*, 1873-4.

1884 HOPKINS, JOHN, L.R.C.P. Ed., 93, Camberwell road, S.E.

1883* HORROCKS, PETER, M.D., F.R.C.P. Lond., Assistant Obstetric Physician to, and Demonstrator of Practical Obstetrics at, Guy's Hospital; 26, St. Thomas's street, S.E. *Council*, 1886-7. *Hon. Lib.* 1888-9. *Hon. Sec.* 1890-91. *Trans.* 1.

1876 HORSMAN, GODFREY CHARLES, 22, King street, Portman square, W.

1883 HOSKIN, THEOPHILUS, L.R.C.P. Lond., 186, Amhurst road, N.E.

1883 HOUCHIN, EDMUND KING, L.R.C.P. Ed., 23, High street, Stepney, E.

Elected

1884 HOUGH, CHARLES HENRY, Full street, Derby.

1877 HOWELL, HORACE SYDNEY, M.D., East Grove House, 18, Boundary road, St. John's Wood, N.W.

1879 HUBBARD, THOMAS WELLS, Rock House, Boughton Monchelsea, Maidstone.

1885 HUGHES, EDGAR A., L.R.C.P.Lond., 10, Old Cavendish street, W.

1889 HUMPHRYS, CHARLES BEYER, L.R.C.P. & S. Edin., The Poplars, Horsmonden, Kent.

1884* HURRY, JAMIESON BOYD, M.D. Cantab., 43, Castle street, Reading. *Council*, 1887-9. *Trans.* 2.

1878 HUSBAND, WALTER EDWARD, 56, Bury New road, Manchester.

1882 HUTTON, ROBERT JAMES, L.R.C.P.Ed., Carshalton Stapleton Hall road, Finsbury park, N.

1883 INMAN, ROBERT EDWARD, Gadshill Cottage, Higham, Kent.

1884 IRWIN, JOHN ARTHUR, M.A., M.D., 14, West Twenty-ninth street, New York.

1887 JACKSON, G. E. CORRIE, F.R.C.S. Ed., 5, Gt. Marlborough street, W.

1883 JACKSON, GEORGE HENRY, 6, Cliff Bridge terrace, Scarborough.

1884 JACKSON, JAMES, 15, Huntingdon street, Barnsbury, N.

1873 JAKINS, WILLIAM VOSPER, L.R.C.P. Ed., 165, Collins street East, Melbourne.

1872 JALLAND, ROBERT, Horncastle, Lincolnshire. *Trans.* 1.

1890 JAMES, CHARLES HENRY, L.R.C.P.Lond., Surg. Indian Army (care of Messrs. Grindlay and Co., 55, Parliament street, S.W.).

1877 JAMIESON, PATRICK, M.A., 3, St. Peter's street, Peterhead, Aberdeenshire.

1885 JAMIESON, ROBERT ALEXANDER, M.D., Shanghai. [Per Messrs. Henry S. King and Co., 65, Cornhill, E.C.]

1886 JAMISON, ARTHUR ANDREW, M.D. Glas., 18, Lowndes street, S.W.

Elected

1883* JENKINS, EDWARD JOHNSTONE, M.B. Oxon., Australian Club, Sydney. [Per H. K. Lewis, 136, Gower street, W. C.]

1877 JENKS, EDWARD W., M.D., 84, Lafayette avenue, Detroit, Michigan, U.S.

1882 JENNINGS, CHARLES EGERTON, F.R.C.S. Eng., Assistant Surgeon to the North-West London Hospital; 15, Upper Brook street, Grosvenor square, W.

1889 JOHNS, HENRY DOUGLAS, L.R.C.P., The Dispensary, Gateshead.

1883 JOHNSON, ARTHUR JUKES, M.B., 52, Bloor street West, Toronto, Ontario, Canada.

1888 JOHNSON, JOHN GEORGE, L.R.C.P. Lond., Concrete House, Swindon.

1877 JOHNSON, SAMUEL, M.D., 5, Hill street, Stoke-upon-Trent.

1881 JOHNSTON, JOSEPH, M.D., 24, St. John's Wood park, N.W. *Council,* 1891.

1879 JOHNSTON, WM. BEECH, M.D., 157, Jamaica road, Bermondsey, S.E.

1868 JONES, EVAN, Ty-Mawr, Aberdare, Glamorganshire. *Council,* 1886-8. *Vice.-Pres.* 1890-91. *Hon. Loc. Sec.*

1878 JONES, H. MACNAUGHTON, M.D., F.R.C.S.I. and Edin., 141, Harley street, Cavendish square, W.

1881 JONES, JAMES ROBERT, M.B., 171, Donald street, Winnipeg, Manitoba, Canada.

1868 JONES, JOHN, 60, King street, Regent street, W.

1887 JONES, J. TALFOURD, M.B. Lond., Rose Bank, South terrace, Eastbourne.

1886 JONES, LEWIS, M.D., Oakmead, Balham, S.W.

1885 JONES, P. SYDNEY, M.D., 16, College street, Hyde park, Sydney. [Per Messrs. D. Jones and Co., 1, Gresham buildings, Basinghall street, E.C.]

1873 JONES, PHILIP W., Silver street, Enfield.

1886 JONES, WILLIAM OWEN, The Downs, Bowden, Manchester.

Elected

1879 JOUBERT, CHARLES HENRY, M.B. Lond., F.R.C.S. Eng., Surgeon-Major, Bengal Medical Dept., 54, Chowringhee, Calcutta.

1878 JUDSON, THOMAS ROBERT, L.R.C.P. Lond., Hayman's Green, West Derby, Liverpool.

1875 JUKES, AUGUSTUS, M.B., N. W. Mounted Police, Regina, N.-W. Territory, Canada.

1878 KANE, NATHANIEL H. K., M.D., Lanherne, Kingston hill, Surrey.

1890 KANTHACK, ALFREDO ANTUNES, F.R.C.S., St. Bartholomew's Hospital, E.C.

1884 KEATES, WILLIAM COOPER, L.R.C.P., 2, Tredegar villas, East Dulwich road, S.E.

1880 KEBBELL, ALFRED, Flaxton, York.

O.F. KEELE, GEORGE THOMAS, 81, St. Paul's road, Highbury, N. *Council*, 1885.

1883 KEELING, JAMES HURD, M.D., 267, Glossop road, Sheffield. *Hon. Loc. Sec.*

1890 KEITH, SKENE, M.B., C.M.Edin., 42, Charles street, Berkeley Square, W.

1874 KEMPSTER, WILLIAM HENRY, M.D., Oak House, Bridge road, Battersea, S.W.

1886 KENNEDY, ALFRED EDMUND, L.R.C.P. Ed., Chesterton House, Plaistow, E.

1879 KER, HUGH RICHARD, L.R.C.P. Ed., 14, Devonshire Road, Balham, S.W.

1872 KERR, NORMAN S., M.D., F.L.S., 42, Grove road, Regent's park, N.W.

1877* KERSWILL, JOHN BEDFORD, M.R.C.P. Ed., Fairfield, St. German's, Cornwall.

1878 KHORY, RUSTONJEE NASERWANJEE, M.D. Brussels, L.Med. Bombay, Physician to the Parell Dispensary, Bombay; Girgaum road, Bombay.

O.F. KIALLMARK, HENRY WALTER, 5, Pembridge gardens, Bayswater. *Council*, 1879-80.

Elected

1860 KINGSFORD, EDWARD, F.R.C.S., Surgeon to the Sunbury Dispensary; Sunbury-on-Thames.

1872* KISCH, ALBERT, 3, Sutherland gardens, Maida vale, W.

1876 KNOTT, CHARLES, M.R.C.P. Ed., Liz Ville, Elm grove, Southsea.

1889 LAKE, GEORGE ROBERT, 72, Gloucester crescent, Hyde park, W.

1867* LANGFORD, CHARLES P., Sunnyside, Hornsey lane, N.

1887 LANGHORNE, THOMAS GRANT, Millicent, S. Australia.

1883 LANGLEY, AARON, L.R.C.P. Ed., 149, Walworth road, S.E.

1886 LANKESTER, HERBERT HENRY, M.D. Lond., 1, Elm park gardens, South Kensington, S.W.

1886 LAUDER, WILLIAM, M.D. Edin., 260, Oxford road, Manchester.

1887 LAW, WILLIAM THOMAS, M.D. Edin., 9, Norfolk crescent, W.

1875 LAWRENCE, ALFRED EDWARD AUST, M.D., Physician-Accoucheur to the Bristol General Hospital; 19, Richmond hill, Clifton, Bristol. *Council*, 1885-86, 1888. *Vice-Pres.*, 1889-90. *Hon. Loc. Sec. Trans.* 1.

1878 LEACHMAN, ALBERT WARREN, M.D., Fairley, Petersfield, Hants.

1884* LEDIARD, HENRY AMBROSE, M.D., 43, Lowther street, Carlisle. *Council*, 1890-91. *Trans.* 1.

1887 LEES, EDWIN LEONARD, M.D., C.M. Ed., 2, The Avenue, Redland road, Bristol.

1860 LEISHMAN, WILLIAM, M.D., Physician to the University Lying-in Hospital, Regius Professor of Midwifery in the University of Glasgow; 11, Woodside crescent, Glasgow. *Council*, 1866-68. *Vice-Pres.* 1869-70. *Trans.* 1.

1885 LEWERS, ARTHUR H. N., M.D. Lond., M.R.C.P., Assistant Obstetric Physician to the London Hospital; 60. Wimpole street, W. *Council*, 1887-89. *Trans.* 6.

1890 LEWIS, ERNEST E., L.R.C.P. Lond., Middlesex Hospital, W.

1877 LEWIS, JOHN RIGGS MILLER, M.D., Deputy-Surgeon General Markham Lodge, Liverpool road, Kingston hill, Surrey

Elected

1885 LIDIARD, SYDNEY ROBERT, L.R.C.P. Ed., 48, Charlotte street, Hull.

1875 LIEBMAN, CARLO, M.D. Vienna, Principal Surgeon, Trieste Civil Hospital, Trieste, Austria. *Trans.* 1.

1874 LITHGOW, ROBERT ALEXANDER DOUGLAS, M.D., 27A, Lowndes street, Belgrave square, S.W.

1868 LLEWELLYN, EVAN, L.R.C.P. Ed., The Limes, Bow road, E.

1872* LOCK, JOHN GRIFFITH, M.A., 2, Rock terrace, Tenby.

1859 LOMBE, THOMAS ROBERT, M.D., Bemerton, Torquay.

1890 LOW, HAROLD, M.B.Cantab., Round Hill Villa, Sydenham, S.E.

1862 LOWE, GEORGE, F.R.C.S., 5, Horninglow street, Burton-on-Trent, Staffordshire. *Council*, 1887-89. *Trans.* 2. *Hon. Loc. Sec.*

1890 LUBBOCK, EDGAR ASHLEY, L.R.C.P.Lond., 4, Westfield terrace, Fulham road, S.W.

1873 LUSH, WILLIAM JOHN HENRY, M.D.Brux., Fyfield House, Andover.

1878* LYCETT, JOHN ALLAN, M.D., The "Hollies," Graiseley, Wolverhampton.

1871 MCCALLUM, DUNCAN CAMPBELL, M.D., Emeritus Professor, McGill University; 45, Union avenue, Montreal, Canada. *Trans.* 4.

1890 MCCANN, FREDERICK JOHN, M.B., C.M.Edin., The Hospital for Sick Children, Great Ormond street, W.C.

1890 MCCAW, JOHN DYSART, F.R.C.S., Ivy House, Lincoln road, East Finchley, N.

1879 MACKEOUGH, GEORGE J., M.D., Chatham, Ontario, Canada.

O.F. MACKINDER, DRAPER, M.D., Consulting Surgeon to the Gainsborough Dispensary; Gainsborough, Lincolnshire. *Council*, 1871-3. *Trans.* 2.

1886 MCMULLEN, WILLIAM, L.K.Q.C.P.I., 319A, Brixton road, S.W.

Elected

1859 MADGE, HENRY M., M.D., 4, Upper Wimpole street, W. *Council*, 1863-65, 1884. *Vice-Pres.* 1872-4. *Trans.* 15.

1884 MALCOLM, JOHN D., M.B., C.M., 24, Bryanston street, W.

1871 MALINS, EDWARD, M.D., Obstetric Physician to the General Hospital, Birmingham; 8, Old square, Birmingham. *Council*, 1881-3. *Vice-Pres.* 1884-6. *Hon. Loc. Sec.*

1868* MARCH, HENRY COLLEY, M.D., 2, West street, Rochdale. *Council*, 1890-91.

1887 MARK, LEONARD P., L.R.C.P. Lond., 19, Upper Berkeley street, Portman square, W.

1860 MARLEY, HENRY FREDERICK, The Nook, Padstow, Cornwall.

1862 MARRIOTT, ROBERT BUCHANAN, Swaffham, Norfolk.

1887 MARSH, O. E. BULWER, L.R.C.P. Ed., Ventnor House, Newport, Monmouthshire.

1890 MARTIN, CHRISTOPHER, M.B., C.M.Edin., 3, The Crescent, Birmingham.

1873 MARTIN, HENRY CHARRINGTON, M.B., C.M., 11, Somers place, Hyde park, W.

1887 MASON, ARTHUR HENRY, L.R.C.P.Lond., Oakwood, Walton-on-Thames.

1884 MASSEY, HUGH HOLLAND, 2, North terrace, Camberwell, S.E.

1884 MASTERS, JOHN ALFRED, L.R.C.P. Lond., Westall House, Brook green, W.

1877 MAUNSELL, H. WIDENHAM, A.M., M.D., Pitt and London street, Dunedin, New Zealand.

1883 MAURICE, OLIVER CALLEY, 75, London street, Reading. *Council*, 1888-90.

1890 MAY, CHICHESTER GOULD, M.A., M.B. Cantab., 13, Fitzwilliam square, Dublin.

1877 MAY, LEWIS JAMES, Bountis Thorne, Seven Sisters road, Finsbury park, N.

1884 MAYNARD, EDWARD CHARLES, L.R.C.P. Ed., 11, Shellons street, Folkestone.

Elected

1885 MELLER, CHARLES BOOTH, L.R.C.P. Ed., Cowbridge, Glamorganshire.

1886 MENNELL, ZEBULON, 31, Shepherd's Bush road, W.

1882 MEREDITH, WILLIAM APPLETON, M.B., C.M., Surgeon to the Samaritan Free Hospital for Women and Children; 6, Queen Anne street, Cavendish square, W. *Council*, 1886-8. *Vice-Pres.* 1891. *Trans.* 2.

1875* MILES, ABIJAH J., M.D., Professor of Diseases of Women and Children in the Cincinnati College of Medicine, Cincinnati, Ohio, U.S.

1876 MILLMAN, THOMAS, M.D., 544, Spadina avenue, Toronto, Ontario, Canada.

1880 MILLS, ROBERT JAMES, M.B., M.C., All Saints' green, Norwich.

1876 MILSON, RICHARD HENRY, M.D., 88, Finchley road, South Hampstead, N.W. *Council*, 1890.

1869* MINNS, PEMBROKE R. J. B., M.D., Thetford, Norfolk.

1867 MITCHELL, ROBERT NATHAL, M.D., Chester House, Wickham road, Brockley, S.E.

1868 MOOTHOOSAWMY, P. S., M.D., F.L.S., Tanjore, Madras Presidency. *Trans.* 1.

1877 MOON, FREDERICK, M.B., Bexley house, Greenwich.

1873 MOON, ROBERT HENRY, F.R.C.S., 160, Norwood road, West Norwood, S.E.

1859 MOORHEAD, JOHN, M.D., Surgeon to the Weymouth Infirmary and Dispensary; Weymouth, Dorset.

1888 MORGAN, GEORGE JOHN, L.K.Q.C.P. & L.M., Dovaston House, Kinnerley, near Oswestry.

1888 MORISON, ALEXANDER, M.D. Ed., Dunnottar, 115, Green lanes, Stoke Newington, N.

1890 MORRIS, CHARLES ARTHUR, M.A., M.B., B.C. Cantab., F.R.C.S., 30, Ebury street, S.W.

1883 MORRIS, CLARKE KELLY, Gordon Lodge, Charlton road, Blackheath, S.E.

Elected

1891 MORTLOCK, CHARLES, L.R.C.P.Lond., 9, Ladbroke gardens, W.

1886 MORTON, SHADFORTH, M.D. Durham, Wellesley villas, Croydon.

1879 MOULLIN, JAMES A. MANSELL, M.A., M.B., Assistant Physician to the Hospital for Women and Children, 69, Wimpole street, Cavendish square, W. *Trans.* 1.

1878 MOWAT, GEORGE, 49, St. Peter street, St. Albans. *Trans.* 1.

1885 MURRAY, CHARLES STORMONT, L.R.C.S. and L.M. Ed., 85, Gloucester place, Portman square, W.

1887 MURRAY, HORACE H. C., 470, Hornsey road, N.

O.F. MUSGRAVE, JOHNSON THOMAS, L.R.C.P. Ed., Irlam Villa, 39, Finchley road, N.W. *Council*, 1859-60. *Trans.* 1.

1888 MYDDELTON-GAVEY, EDWARD HERBERT, 64, St. Matthew's street, Ipswich.

1887 NAPIER, A. D. LEITH, M.D. Aber., 67, Grosvenor street, W. *Trans.* 1.

1859 NEAL, JAMES, M.D., Parterre, Sandown, Isle of Wight.

1882 NESHAM, THOMAS CARGILL, M.D., Lecturer on Midwifery in the University of Durham College of Medicine at Newcastle-on-Tyne; 12, Ellison place, Newcastle-on-Tyne. *Council*, 1889-91.

1859* NEWMAN, WILLIAM, M.D., Surgeon to the Stamford and Rutland Infirmary; Barn Hill House, Stamford, Lincolnshire. *Council*, 1873-75. *Vice-Pres.* 1876-77. *Trans.* 5.

1889 NEWNHAM, WILLIAM HARRY CHRISTOPHER, M.A., M.B.Cantab., 1, Leicester place, Clifton, Bristol.

1873 NICHOLSON, ARTHUR, M.B. Lond., 98, Montpellier road, Brighton.

1879 NICHOLSON, EMILIUS ROWLEY, M.D., 11, Telford avenue, Streatham hill, S.W.

1876 NIX, EDWARD JAMES, M.D., 143, Great Portland street, W. *Council*, 1889-90.

1882 NORMAN, JOHN EDWARD, Lismore House, Hebburn-on-Tyne.

Elected

1883 NUNN, PHILIP W. G., L.R.C.P. Lond., Maplestead, Christchurch road, Bournemouth.

1884 OAKES, ARTHUR, M.D., Lachsmeade, Staveley road, Eastbourne.

1880 OAKLEY, JOHN, Holly House, Wood's end, Halifax, Yorkshire.

1886 OGLE, ARTHUR WESLEY, L.R.C.P. Lond., 90, Cannon street, E.C.

1876 OGSTON, FRANCIS, M.D., Lecturer on Hygiene and Medical Jurisprudence in the University of Otago; Dunedin, New Zealand (per Richard W. K. Bain, 146, Union street, Aberdeen).

O.F. OLDHAM, HENRY, M.D., F.R.C.P., Consulting Obstetric Physician to Guy's Hospital; 4, Cavendish place, Cavendish square, W. *Vice-Pres.* 1859. *Council*, 1860, 1865-66. *Treas.* 1861-62. *Pres.* 1863-64. *Trans.* 1. *Trustee.*

1888 OLIVER, FRANKLIN HEWITT, L.R.C.P. Lond., 2, Kingsland road, E.

1889 OLIVER, JAMES, M.D., F.R.S. Edin., 18, Gordon square, W.C.

1884 OPENSHAW, THOMAS HORROCKS, M.B., M.S., 21, Gower street, W.C.

1869 ORD, GEORGE RICE, Streatham hill, Surrey. *Council*, 1881.

1890 ORR, A. AYLMER, M.A., M.B.Oxon., 204, Earl's Court road, W.

1880 ORTON, CHARLES, M.D., Nelson place, Newcastle-under-Lyme, Staffordshire.

1890 OSBURN, HAROLD BURGESS, L.R.C.P., 21, Cedar's road, Clapham Common, S.W.

1877 OSTERLOH, PAUL RUDOLPH, M.D. Leipzic; Dresden.

1863 OSWALD, JAMES WADDELL JEFFRIES, M.D., 245, Kennington road, S.E. *Trans.* 4.

1889* PAGE, HARRY MARMADUKE, F.R.C.S., 4, St. Margaret's road, Oxford.

Elected

1883 PALMER, JOHN IRWIN, 47, Queen Anne street, Cavendish square, W.

1886 PAPILLON, THOMAS ALEXANDER, L.R.C.P. Ed., Burley road, Oakham.

1877* PARAMORE, RICHARD, M.D., 2, Gordon square, W.C.

1867* PARKS, JOHN, Bank House, Manchester road, Bury, Lancashire.

1887 PARSONS, JOHN INGLIS, M.D.Durh., 3, Queen street, Mayfair, W.

1880 PARSONS, SIDNEY, 78, Kensington Park road, W.

1889 PARSONS, THOMAS EDWARD, Paddock House, Ridgeway, Wimbledon, S.W.

1865* PATERSON, JAMES, M.D., Hayburn Bank, Partick, Glasgow.

1882* PEACEY, WILLIAM, M.B., 214, Lewisham High road, S.E.

1864 PEARSON, DAVID RITCHIE, M.D., 23, Upper Phillimore place, Kensington, W.

1871 PEDLER, GEORGE HENRY, 6, Trevor terrace, Rutland gate, S.W.

1880 PEDLEY, THOMAS FRANKLIN, M.D., Rangoon, India. *Trans.* 1.

1881 PERIGAL, ARTHUR, M.D., New Barnet, Herts.

1871 PERRIGO, JAMES, M.D., 163, Bleury street, Montreal, Canada. *Hon. Loc. Sec.*

1879* PESIKAKA, HORMASJI DOSABHAI, 23, Hornby row, Bombay.

1883 PETTIFER, EDMUND HENRY, 32, Stoke Newington green, N.

1879 PHIBBS, ROBERT FEATHERSTONE, M.R.C.P. Ed., 130, Elgin avenue, W.

1879 PHILLIPS, GEORGE RICHARD TURNER, 24, Leinster square, Bayswater, W. *Council*, 1891.

1882 PHILLIPS, JOHN, B.A., M.D. Cantab., M.R.C.P., Assistant Obstetric Physician to King's College Hospital; 71, Grosvenor street, W. *Council*, 1887-9. *Trans.* 5.

1891 PHILLIPS, W. E. PICTON, 10, Sloane street, S.W.

Elected

1878 PHILPOT, JOSEPH HENRY, M.D., 13, South Eaton place, S.W. *Council*, 1891.

1871 PHILPS, PHILIP GEORGE, 21, Russell road, Kensington, W.

1876 PICARD, P. KIRKPATRICK, M.D., 59, Abbey road, St. John's Wood, N.W.

1874 PIGG, THOMAS, M.D., M.R.C.P., High Leam, Bellagio, East Grinstead.

1889 PINHORN, RICHARD, L.R.C.P. Lond., 5, Cambridge terrace, Dover.

1889 PLAYFAIR, DAVID THOMSON, M.D., C.M. Edin., Redwood House, Bromley, Kent.

1864* PLAYFAIR, W. S., M.D., LL.D., F.R.C.P., Physician-Accoucheur to H.I. & R.H. the Duchess of Edinburgh; Professor of Obstetric Medicine in King's College, and Obstetric Physician to King's College Hospital; 31, George street, Hanover square, W. *Council*, 1867. 1883-5. *Hon. Librarian*, 1868-9. *Hon. Sec.* 1870-72. *Vice-Pres.* 1873-5. *Pres.* 1879-80. *Trans.* 14.

1880 POCOCK, FREDERICK ERNEST, M.D., The Limes, St. Mark's road, Notting hill, W.

1883 POCOCK, WALTER, Gwydyr House, 58, Brixton hill, S.W.

1883 POOK, WILLIAM JOHN, L.R.C.P., 2, Hemingford road, N.

1876 POPE, H. CAMPBELL, M.D., F.R.C.S., Broomsgrove Villa, 280, Goldhawk road, Shepherd's Bush, W.

1888 POPHAM, ROBERT BROOKS, L.R.C.P. & S. Ed., 67, Bartholomew road, Camden road, N.W.

1882 PORTER, JOSEPH FRANCIS, M.D., Helmsley, Yorkshire.

1864 POTTER, JOHN BAPTISTE, M.D., F.R.C.P., Obstetric Physician to, and Lecturer on Midwifery and Diseases of Women at, the Westminster Hospital; 20, George street, Hanover square, W. *Council*, 1872-6, 1890-91. *Hon. Lib.* 1877-8. *Vice-Pres.* 1879-81. *Treas.* 1882-4. *Board Exam. Midwives*, 1883-4. *Pres.* 1885-6. *Trans.* 1.

1875 POWDRELL, JOHN, 160, Euston road, N.W.

Elected

1884 Powell, John James, L.R.C.P. Lond., Norwood Lodge, Weybridge.

1863 Powell, Josiah T., M.D., 347, City road, E.C.

1885 Praeger, Emil Arnold, Nanaimo, British Columbia.

1886 Prangley, Henry John, L.R.C.P. Lond., 160, Anerley road, Anerley.

1888 Pratt, George A., The Willows, Waterloo road, Wolverhampton.

1880* Prickett, Marmaduke, M.A.Cantab., M.D., Physician to the Samaritan Hospital; 12, Devonport street, Gloucester square, W.

O.F.* Priestley, William O., M.D., LL.D., F.R.C.P., Consulting Obstetric Physician to King's College Hospital; 17, Hertford street, Mayfair, W. *Council*, 1859-61, 1865-66. *Vice-Pres.* 1867-69. *Pres.* 1875-76. *Trans.* 6.

1876* Quirke, Joseph, L.R.C.P. Ed., The Oaklands, Hunter's road, Handsworth, Birmingham.

1861 Rasch, Adolphus A. F., M.D., Physician for Diseases of Women to the German Hospital; 7, South street, Finsbury square, E.C. *Council*, 1871-3. *Trans.* 6.

1878 Rawlings, John Adams, M.R.C.P. Ed., 4, Northampton terrace, Swansea.

1870* Ray, Edward Reynolds, Dulwich, S.E.

1860* Rayner, John, M.D., Swaledale House, Quadrant road north, Highbury New park, N.

1879 Read, Thomas Laurence, 11, Petersham terrace, Queen's gate, S.W.

1874 Rees, William, Priory House, 129, Queen's crescent, Haverstock hill, N.W.

1890 Reid, Godfrey Forrest, M.D. Dubl., Bethlehem, Orange Free State, South Africa.

1879 Reid, William Loudon, M.D., Professor of Midwifery and Diseases of Women and Children, Anderson's College; Physician to the Glasgow Maternity Hospital; 7, Royal crescent, Glasgow.

Elected

1889 REMFRY, LEONARD, M.A., M.D.Cantab., 5, Hertford street, Mayfair, W.

1889 RENTOUL, ROBERT REID, M.D., 78, Hartington road, Liverpool.

1875* REY, EUGENIO, M.D., 39, Via Cavour, Turin.

1890 REYNOLDS, JOHN, M.D.Brux., 369, Coldharbour lane, Brixton, S.W.

1886 RICHARDSON, THOMAS ARTHUR, 87, London road, Croydon.

1872 RICHARDSON, WILLIAM L., M.D., A.M., Professor of Obstetrics in Harvard University; Physician to the Boston Lying-In Hospital; 225, Commonwealth avenue, Boston, Massachusetts, U.S.

1889 RICHMOND, THOMAS, L.R.C.P. Ed., 26, Burnbank terrace, Glasgow.

1888 RIDING, WILLIAM STEER, M.D.Edin., Buckerell Lodge, Honiton.

1872 RIGDEN, GEORGE, Surgeon to the Canterbury Dispensary; 60, Burgate street, Canterbury. *Trans.* 1. *Hon. Loc. Sec.*

1871 RIGDEN, WALTER 16, Thurloe place, S.W. *Council*, 1882-3. *Trans.* 1.

O.F.* ROBERTS, DAVID LLOYD, M.D., F.R.C.P., F.R.S. Edin., Obstetric Physician to the Manchester Royal Infirmary; and Lecturer on Clinical Midwifery and the Diseases of Women in Owens College; 11, St. John street, Deansgate, Manchester. *Council*, 1868-70, 1880-2. *Vice-Pres.* 1871-2. *Trans.* 5.

1867* ROBERTS, DAVID W., M.D., 56, Manchester street, Manchester square, W.

1890 ROBERTS, HUGH JONES, Sea View, Penygroes, R.S.O., N. Wales.

1883 ROBERTS, JOHN CORYTON, L.R.C.P. Ed., Avenue House, Peckham rye, S.E.

1874 ROBERTSON, WILLIAM BORWICK, M.D., St. Anne's, Thurlow park road, West Dulwich, S.E

Elected

1890 ROBINSON, ARTHUR HENRY, M.D.Durh., The Infirmary, Bancroft road, S.E.

1887 ROBINSON, HUGH SHAPTER, L.R.C.P. Ed., 12, North Bridge street, Monkwearmouth, Sunderland.

1884 ROBINSON, LUKE, M.R.C.P. Lond., 217, Geary street, San Francisco, California.

1890 ROBSON, A. W. MAYO, F.R.C.S., Hillary place, Leeds.

1886 ROE, ARTHUR DUMVILLE, B.A , M.B. Cantab., West hill, Wandsworth, S.W.

1876 ROE, JOHN WITHINGTON, M.D., Ellesmere, Salop.

1874 ROOTS, WILLIAM HENRY, Canbury House, Kingston-on-Thames.

1874 ROPER, ARTHUR, Lewisham hill, Blackheath, S.E. *Council*, 1886-8.

1865* ROPER, GEORGE, M.D., Consulting Physician to the Royal Maternity Charity; Oulton Lodge, Aylsham, Norfolk. *Council*, 1875-77, 1883-5. *Vice-Pres.* 1879-81, 1889, *Board Exam. Midwives*, 1880-1, 1883-5. *Trans.* 10.

1859 ROSE, HENRY COOPER, M.D., Penrose House, Hampstead, N.W. *Council*, 1875-77. *Trans.* 4.

1887 ROSENAU, ALBERT, M.D., Webergasse, 15, Wiesbaden.

1880 ROSS, DAVID PALMER, M.D., Freetown, Sierra Leone.

1883 ROSSER, WALTER, M.D., 1, Wellesley villas, Croydon.

1884 ROSSITER, GEORGE FREDERICK, M.B., Surgeon to the Weston-super-Mare Hospital; Cairo Lodge, Weston-super-Mare.

1885 ROUGHTON, EDMUND WILKINSON, M.D., 33, Westbourne terrace, W.

1884 ROUGHTON, WALTER, L.R.C.P.Lond., Cranborne House, New Barnet.

1882 ROUTH, AMAND, M.D., B.S., Assistant Obstetric Physician to, and Teacher of Practical Obstetrics and Gynæcology at, Charing Cross Hospital; 14A, Manchester square, W. *Council*, 1886-8 *Trans.* 2.

Elected

O.F.* ROUTH, CHARLES HENRY FELIX, M.D., Consulting Physician to the Samaritan Free Hospital for Women and Children; 52, Montagu square, W. *Council*, 1859-61. *Vice-Pres.* 1874-6. *Trans.* 13.

1887 ROWBOTHAM, HERBERT C.

1887* ROWE, ARTHUR WALTON, M.D. Dur., 1, Cecil street, Margate.

1881 ROWORTH, ALFRED THOMAS, Grays, Essex.

1886 RUSHWORTH, FRANK, M.B. Lond., Langdale, Goldhurst terrace, South Hampstead, N.W.

1888 RUSHWORTH, NORMAN, L.R.C.P. Lond., Beechfield, Walton-on-Thames.

1886 RUTHERFOORD, HENRY TROTTER, B.A., M.B. Cantab., 46, Queen Anne street, Cavendish square, W.

1866 SABOIA, Baron V. de, M.D., Director of the School of Medicine, Rio de Janeiro; 34, Rua do Visconde Maranguapo, Rio de Janeiro. *Trans.* 2.

1883 SALTER, FRANCIS JOSEPH, L.R.C.P. Ed., 9, Lyddon terrace, Leeds.

1864 SALTER, JOHN H., D'Arcy House, Tolleshunt D'Arcy, Kelvedon, Essex.

1875* SALZMANN, FREDERICK WILLIAM; Senior Surgeon to the Hospital for Women; 97A, Montpellier road, Brighton. *Council*, 1880-2. *Hon. Loc. Sec.*

1868* SAMS, JOHN SUTTON, St. Peter's Lodge, Eltham road, Lee, S.E.

1886 SANDERSON, ROBERT, M.B. Oxon., 33, Montpellier road, Brighton.

1872 SANGSTER, CHARLES, 148, Lambeth road, S.E.

1870 SAUL, WILLIAM, M.D., Lyndthorpe, Boscombe, Bournemouth.

1891 SAUNDERS, FREDERICK WILLIAM, M.B., B.C.Cantab., 17, Barkston gardens, South Kensington, S.W.

1872 SAVAGE, THOMAS, M.D., Surgeon to the Birmingham and Midland Hospital for Women; 33, Newhall street, Birmingham. *Council*, 1878-80.

Elected

1877 SAVORY, CHARLES TOZER, M.D., 6, Douglas road, Canonbury, N. *Trans.* 1.

1890 SCHACHT, FRANK FREDERICK. B.A., M.B.Cantab., 168, Earl's Court road, S.W.

1870 SCOTT, JOHN, M.D., New street, Sandwich.

1888 SCOTT, PATRICK CUMIN, B.A., M.B. Cantab., 38, Shooter's Hill road, Blackheath, S.E.

1866 SEQUEIRA, JAMES SCOTT, 68, Leman street, Goodman's fields, E., and Crescent House, Cassland crescent, Cassland road, South Hackney.

1882 SERJEANT, DAVID MAURICE, M.D., 1, The Terrace, Camberwell, S.E.

1875 SETON, DAVID ELPHINSTONE, M.D., 110, Cromwell road, S.W. *Council*, 1884.

1860 SEWELL, CHARLES BRODIE, M.D., 21, Cavendish square, W., and 13, Fenchurch street, E.C. *Council*, 1880-2.

1887 SHANNON, R. ALEXANDER, L.R.C.P. Ed., Crofton, Orpington, Kent.

O.F. SHARPIN, HENRY WILSON, F.R.C.S., Surgeon to the Bedford General Infirmary, Bedford. *Council*, 1871-3. *Trans.* 1. *Hon. Loc. Sec.*

1887 SHAW, JOHN, M.D. Lond., Obstetric Physician to the North West London Hospital; 34, Queen Anne street, Cavendish square, W. *Trans.* 1.

1867 SHEPHERD, FREDERICK, L.R.C.P. Ed., 33, King Henry's road, Primrose hill, N.W.

1890 SHILLINGFORD, HENRY BARTLETT, 118, Peckham Rye, S.E.

1890 SILK, JOHN FREDERICK WILLIAM, M.D. Lond., 6, Chandos street, W.

1886 SIMMONS, FOURNESS, M.B.Edin., Brisbane, Queensland.

1874 SINCLAIR, ALEXANDER DOULL, M.D., Consulting Physician to the Boston Lying-in Hospital; 35, Newbury street, Boston, Massachusetts, U.S.

Elected

1888 SINCLAIR, WILLIAM JAPP, M.D. Aber., Honorary Physician to the Southern Hospital for Women and Children and Maternity Hospital, Manchester; and Professor of Obstetrics and Gynæcology, Owens College, Manchester; 268, Oxford road, Manchester.

1879 SLIGHT, GEORGE, M.D., 3, Clifford street, Bond street, W.

1881 SLOAN, ARCHIBALD, M.B., 272, Bath street, Glasgow.

1876 SLOAN, SAMUEL, M.D., C.M., 5, Somerset place, Sauchiehall street West, Glasgow.

1890 SLOMAN, FREDERICK, Downford, 97A, Montpellier road, Brighton.

1861 SLYMAN, WILLIAM DANIEL, 26, Caversham road, Kentish Town, N.W. *Council*, 1881.

1867 SMITH, HEYWOOD, M.D., 18, Harley street, Cavendish square, W. *Council*, 1872-5. *Board Exam. Midwives*, 1874-76. *Trans.* 6.

1888 SMITH, HOWARD LYON, L.R.C.P.Lond., Buckland House, Buckland Newton, near Dorchester.

1890 SMITH, HUGH, M.D.Lond., 36, Bow Road, E.

1875 SMITH, RICHARD THOMAS, M.D., Physician to the Hospital for Women, Soho square; 53, Haverstock hill, N.W.

1886 SMITH, SAMUEL PARSONS, L.K.Q.C.P.I., Park Hyrst, Addiscombe road, Croydon.

1882 SMITH, STEPHEN MABERLY, L.R.C.P. Ed., Yarra street, Geelong, Melbourne. [Per Henry M. Smith, Holly Lodge, Chillington, Kingsbridge, South Devon.]

1879 SMITH, WM. HUGH MONTGOMERY, L.R.C.P. Ed., 24, London road, West Croydon, Surrey.

1876 SNELL, EDMUND GEORGE CARRUTHERS, 102, Bonner road, Victoria park, N.E.

1882 SNELL, GEORGE, L.R.C.P. Ed., Fort Canje, Berbice, B. Guiana.

1889 SOLLY, ERNEST, M.B. Lond., F.R.C.S. Eng., 79, Lambeth Palace road, S.E.

1868 SPAULL, BARNARD E., 1, Stanwick road, West Kensington, W.

Elected

1888 SPENCER, HERBERT R., M.D., B.S. Lond., Assistant Obstetric Physician to University College Hospital; 10, Mansfield street, Cavendish square, W. *Council*, 1890-91. *Trans.* 1.

1876 SPENCER, LIONEL DIXON, M.D., Brigade-Surgeon, I.M.S., Bengal Establishment [care of Messrs. Grindlay and Co., 55, Parliament street].

1882 SPOONER, FREDERICK HENRY, M.D., Maitland Lodge, Clapton, N.E.

1876 SPURGIN, HERBERT BRANWHITE, 82, Abington street, Northampton.

1884 STANSBY, CHARLES JOHN, M.D., 10, Strand, Derby.

1886 STEAVENSON, WILLIAM EDWARD, M.D. Cantab., M.R.C.P., 15, Mansfield street, W. *Trans.* 1.

1884 STEVENSON, EDMOND SINCLAIR, F.R.C.S. Ed., Strathallan House, Rondebosch, Cape of Good Hope. *Trans.* 1.

1877 STEPHENSON, WILLIAM, M.D., Professor of Midwifery, University of Aberdeen; 297, Union Street, Aberdeen. *Council*, 1881-3. *Vice-Pres.*, 1887-89. *Trans.* 2.

1873 STEWART, JAMES, M.D., 2, Skinner street, Whitby, Yorkshire.

1875* STEWART, WILLIAM, F.R.C.P. Ed., Dyrock Cottage, Prestwick, near Ayr, N.B.

1884 STIVEN, EDWARD W. F., M.D., The Manor Lodge, Harrow.

1884 STIVENS, BERTRAM H. LYNE, 11, Kensington gardens square, W.

1883 STOCKS, FREDERICK, 421, Wandsworth road, S.W.

1866* STRANGE, WILLIAM HEATH, M.D., 2, Belsize avenue, Belsize park, N.W. *Council*, 1882-4.

1871 STURGES, MONTAGUE J., M.D., The Limes, Beckenham, Kent.

1884 SUNDERLAND, SEPTIMUS, M.D., 155, Gloucester road, South Kensington, S.W.

1886 SUTCLIFFE, ARTHUR EDWIN, Chorlton Lodge, Stretford road, Manchester.

1883* SUTHERLAND, HENRY, M.A., M.D. Oxon., M.R.C.P., 6, Richmond terrace, Whitehall, S.W.

Elected

1888 SUTTON, JOHN BLAND, F.R.C.S., 48, Queen Anne street, Cavendish square, W. *Trans.* 1.

1859* SWAYNE, JOSEPH GRIFFITHS, M.D., Physician-Accoucheur to the Bristol General Hospital; Harewood House, 74, Pembroke road, Clifton, Bristol. *Council*, 1860-61, *Vice-Pres.* 1862-64. *Trans.* 9. *Hon. Loc. Sec.*

1888* SWORN, HENRY GEORGE, L.K.Q.C.P. & L.M., 16, Albion road, Holloway road, N.

1883 TAIT, EDWARD SABINE, M.D., 48, Highbury park, N. *Trans.* 1.

1879 TAIT, EDWARD W., 48, Highbury park, N. *Council*, 1886-7.

1871 TAIT, LAWSON, F.R.C.S., Surgeon to the Birmingham and Midland Hospital for Women; 7, The Crescent, Birmingham. *Trans.* 12.

1880 TAKAKI, KANAHEIRO, F.R.C.S., 10, Nishi-Konyachō, Kiōbashika, Tokio, Japan. *Hon. Loc. Sec.*

1871 TANNER, JOHN, M.D., F.L.S., Physician for Diseases of Women, to the Farringdon General Dispensary; 19, Queen Anne street, Cavendish square, W.

1859 TAPSON, ALFRED JOSEPH, M.B. Lond., 36, Gloucester gardens, Westbourne terrace, W. *Council*, 1862-64. *Vice-Pres.* 1891.

1863 TAPSON, JOSEPH ALFRED, Surgeon to the Clapham General Dispensary; Holmwood, The Grove, Clapham common, S.W. *Trans.* 1.

1871 TAYLER, FRANCIS T., B.A. Lond., M.B., Claremont villa, 224, Lewisham high road, S.E.

1869 TAYLOR, JOHN, Earl's Colne, Halstead, Essex.

1871 TAYLOR, JOHN W., M.D., D.Sc., Rothsay House, Prince of Wales terrace, Scarborough. *Hon. Loc. Sec.*

1890* TAYLOR, JOHN WILLIAM, F.R.C.S., 59, Bath street, Birmingham.

1885 TAYLOR, WILLIAM CHARLES EVERLEY, M.R.C.P. Edin., 34, Queen street, Scarborough.

1890 THOMAS, BENJAMIN WILFRED, L.R.C.P. Lond., Welwyn.

1884 THOMAS, GEORGE H. W., Orchard House, Teignmouth.

Elected

1887 THOMAS, WILLIAM EDMUND, L.R.C.P. Ed., Bridgend, Glamorganshire.

1882 THOMAS, HUGH, The Grange, Coventry road, Birmingham.

1890 THOMPSON, CHARLES HERBERT, B.A., M.D. Dubl., 21, Half-moon street, Mayfair, W.

1867* THOMPSON, JOSEPH, L.R.C.P. Lond., 1, Oxford street, Nottingham. *Trans.* 1. *Hon. Loc. Sec.*

1878 THOMSON, DAVID, M.D., 37, Castle street, Luton, Bedfordshire.

1874 THOMSON, WILLIAM SINCLAIR, M.D., C.M., F.R.C.S. Ed., 1, Palace court, Notting hill gate, W.

1879 THORNTON, J. KNOWSLEY, M.B., C.M., Surgeon to the Samaritan Free Hospital for Women and Children, 22, Portman street, Portman square. *Council*, 1882-3. *Hon. Lib.* 1884-5. *Hon. Sec.* 1886. *Vice-Pres.* 1888. *Trans.* 6.

1874 TICEHURST, AUGUSTUS ROWLAND, Silchester House, Pevensey road, St. Leonard's-on-Sea.

1873 TICEHURST, CHARLES SAGE, Petersfield, Hants.

1866 TILLEY, SAMUEL, 6, Down street, Piccadilly, W.

O.F. TILT, EDWARD JOHN, M.D., Consulting Physician-Accoucheur to the Farringdon General Dispensary; 27, Seymour street, Portman square, W. *Council*, 1867-68. *Vice-Pres.* 1869-70. *Treas.* 1871-2. *Pres.* 1873-4. *Trans.* 7.

1883 TINKER, FREDERICK HOWARD, F.R.C.P. Ed., Talbot House, Hyde, Cheshire.

1887 TINLEY, THOMAS, M.D. Durh., Hildegard House, Whitby.

1879 TIVY, WILLIAM JAMES, F.R.C.S. Ed., 8, Lansdown place, Clifton, Bristol.

1872 TOLOTSCHINOFF, N., M.D., Charkoff, Russia.

1884 TRAVERS, WILLIAM, M.D., 2, Phillimore gardens, W.

1873 TRESTRAIL, HENRY ERNEST, F.R.C.S. Ed., M.R.C.P. Ed., 36, Westbourne gardens, Glasgow, W. *Trans.* 1.

1886 TUCKETT, WALTER REGINALD, West Kent General Hospital, Maidstone.

Elected

1865* TURNER, JOHN SIDNEY, Stanton House, 81, Anerley road, Upper Norwood.

1881 TUTHILL, PHINEAS BARRETT, M.D., Station Hospital, Gibraltar.

1861 TWEED, JOHN JAMES, Junr., F.R.C.S., 14, Upper Brook street, W.

1890 TYRRELL, WALTER, L.R.C.P.Lond., 95, Cromwell road, S.W.

1874 VENN, ALBERT JOHN, M.D., Obstetric Physician to the Metropolitan Free Hospital; 122, Harley street, W.

1873 VERLEY, REGINALD LOUIS, F.R.C.P. Ed., 28B, Devonshire street, Portland place, W.

1879 WADE, GEORGE HERBERT, Ivy Lodge, Chislehurst, Kent.

1860 WALES, THOMAS GARNEYS, Downham Market, Norfolk.

1866 WALKER, THOMAS JAMES, M.D., Surgeon to the General Infirmary, Peterborough; 33, Westgate, Peterborough. *Council*, 1878-80. *Hon. Loc. Sec.*

1889 WALLACE, ABRAHAM, M.D. Edin., 64, Harley street, W.

1870 WALLACE, FREDERICK, 96, Cazenove road, Upper Clapton, N. *Council*, 1880-2.

1872* WALLACE, JOHN, M.D., Assistant-Physician to the Liverpool Lying-in Hospital; 1, Gambier terrace, Liverpool. *Hon. Loc. Sec. Council*, 1883-5.

1883 WALLACE, RICHARD UNTHANK, M.B., Cravenhurst, Craven park, Stamford hill, N.

1879* WALTER, WILLIAM, M.A., M.D., Surgeon to St. Mary's Hospital, Manchester; 20, St. John street, Manchester.

1867* WALTERS, JAMES HOPKINS, Surgeon to the Royal Berkshire Hospital; 15, Friar street, Reading, Berks. *Council*, 1884-6. *Trans.* 1. *Hon. Loc. Sec.*

1873 WALTERS, JOHN, M.B., Church street, Reigate, Surrey.

1886 WARE, GEORGE STEPHEN, L.R.C.P.Lond., Newtownfields, Carshalton.

Elected

1862 WATKINS, CHARLES STEWART, 16, King William street, Strand, W.C.

1884 WATSON, PERCIVAL HUMBLE, L.R.C.P. Lond., 72, Jesmond road, Newcastle-on-Tyne.

1884 WAUGH, ALEXANDER, L.R.C.P. Lond., Midsomer-Norton, Bath.

O.F. WEBB, HARRY SPEAKMAN, New place, Welwyn, Herts. *Council*, 1889-91.

1886 WEBBER, WILLIAM W., L.R.C.P. Ed., Crewkerne.

1884 WEDMORE, ERNEST, M.B. Cantab., Obstetric Physician to the Bristol Royal Infirmary; 11, Richmond Hill, Clifton.

1876 WEIR, ARCHIBALD, M.D., St. Mungho's, Great Malvern.

1887 WELLS, ALBERT PRIMROSE, M.A., L.R.C.P. & S., L.M., Bourneville, School road, Beckenham.

1876 WELLS, FRANK, M.D., Hawes street, Brookline, Massachusetts.

O.F. WELLS, SIR T. SPENCER, Bart., F.R.C.S., Surgeon in Ordinary to H.M.'s Household; Consulting Surgeon to the Samaritan Free Hospital for Women and Children; 3, Upper Grosvenor street, W. *Council*, 1859. *Vice-Pres.* 1868-70. *Trans.* 5. *Trustee.*

1886 WEST, CHARLES J., L.R.C.P. Lond., Beaminster, Kempshott road, Streatham Common, S.W.

1888 WESTON, JOSEPH THEOPHILUS, L.K.Q.C.P. & L.M., Civil Surgeon, Mergui, Lower Burmah.

1886 WHARRY, ROBERT, M.D. Aber., 6, Gordon square, W.C.

1876 WHARTON, HENRY THORNTON, M.A. Oxford, 39, St. George's road, Kilburn, N.W.

1890 WHEATON, SAMUEL W., M.D.Lond., 52, The Chase, Clapham common, S.W.

1860 WHEELER, DANIEL, Chelmsford.

1889 WHITCOMBE, CHARLES HENRY, F.R.C.S. Edin., Westerham, Kent.

1890 WHITE, CHARLES PERCIVAL, M.A., M.B., B.C.Cantab., 144, Sloane street, S.W.

Elected

1890 WHITE, EDWIN FRANCIS, F.R.C.S., 7, Dealtry road, Putney, S.W.

1882 WHOLEY, THOMAS, M.B. Durh., Winchester House, 50, Old Broad street, E.C.

1883 WICKS, WILLIAM CAIRNS, M.B., South View House, West parade, Newcastle-on-Tyne.

1887 WIGAN, CHARLES ARTHUR, M.B. Durh., Portishead, Somerset.

1877 WIGMORE, WILLIAM, 131, Inverness terrace, Hyde park, W.

1883 WILKINSON, THOMAS MARSHALL, F.R.C.S. Ed., Surgeon to the Lincoln County Hospital; 7, Lindum road, Lincoln.

1879 WILLANS, WILLIAM BLUNDELL, F.R.C.P. Ed., Much Hadham, Herts.

1879 WILLETT, CHARLES VERRALL, 3, Southdown road, Shoreham, Sussex.

1889 WILLIAMS, ARTHUR HENRY, M.A., M.B., B.C. Cantab., 79, London road, St. Leonard's-on-Sea.

1887 WILLIAMS, CHARLES ROBERT, M.B., C.M. Ed., 15, Ivanhoe terrace, Ashby-de-la-Zouch.

1872 WILLIAMS, JOHN, M.D., F.R.C.P., Physician-Accoucheur to H.R.H. Princess Beatrice, Princess Henry of Battenberg; Professor of Midwifery in University College, London, and Obstetric Physician to University College Hospital; 63, Brook street, Grosvenor square, W. *Council*, 1875-76. *Hon. Sec.* 1877-9. *Vice-Pres.* 1880-2. *Board Exam. Midwives*, 1881-2; *Chairman*, 1884-6. *Pres.* 1887-8. *Trans.* 12.

1890 WILLIAMS, REGINALD MUZIO, M.D. Lond., 95, St. Mark's road, N. Kensington, W.

1881 WILLIS, JULIAN, M.R.C.P. Ed., 64, Sutherland avenue, Maida vale, W.

1860 WILSON, ROBERT JAMES, F.R.C.P. Ed., 7, Warrior square, St. Leonard's-on-Sea, Sussex. *Hon. Loc. Sec. Vice-Pres.* 1878-80.

1886 WINTERBOTTOM, ARTHUR THOMAS, L.R.C.P. Ed., Lark hill, Swinton, Manchester.

Elected

1877 WINTLE, HENRY, M.B., Kingsdown, Church road, Forest hill, S.E.

1887 WITHERS, ROBERT, Lawrence, Otago, New Zealand.

1880 WOODWARD, G. P. M., M.D., 157, Liverpool street, Sydney, New South Wales.

1890 WORNUM, GEORGE PORTER, 6, College terrace, Belsize park, N.W.

O.F. WORSHIP, J. LUCAS, Manor House, Riverhead, Sevenoaks, Kent. *Council*, 1875-77. *Vice-Pres.* 1883-5. *Trans.* 3.

1881 WORTHINGTON, GEORGE FINCH JENNINGS, M.K.Q.C.P., Highden, Sidcup.

1876 WORTS, EDWIN, 6, Trinity street, Colchester.

1887 WRIGHT, CHARLES JAMES, Surgeon to the Hospital for Women and Children, Leeds; Professor of Midwifery to the Yorkshire College; Lynton Villa, Virginia road, Leeds.

1888* WYATT-SMITH, FRANK, M.B., B.C.Cantab., British Hospital, Buenos Ayres.

1889 WYNTER, ANDREW ELLIS, L.R.C.P. Lond., 30, Upper Berkeley street, Portman square, W.

1871 YARROW, GEORGE EUGENE, M.D., Oakley House, 317, City road, E.C. *Council*, 1881-3.

1882* YOUNG, CHARLES GROVE, M.D., New Amsterdam, Berbice, British Guiana.

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OBSTETRICAL SOCIETY

OF

LONDON.

SESSION 1890.

JANUARY 8TH, 1890.

A. L. GALABIN, M.D., President, in the Chair.

Present—28 Fellows and 2 Visitors.

Books were presented by Dr. Auvard and Dr. Godson.

James Oliver, M.D., F.R.S.Edin., was admitted a Fellow of the Society.

Harry Marmaduke Page, F.R.C.S. (Oxford), and Arthur Hardwick, M.D.Dubl. (Newquay), were declared admitted.

The following gentlemen were elected Fellows of the Society:—Robert James Carter, M.B.Lond.; Charles Plumley Childe, L.R.C.P.Lond. (Southsea); Edward Henry Douty, M.A., M.B., B.C.Cantab. (Cambridge); Harry St. Clair Gray, M.D., C.M.Glas. (Glasgow); T. Arthur Helme, M.D.Edin. (Manchester); Charles Henry James, L.R.C.P.Lond.; Ernest E. Lewis, L.R.C.P.Lond.; Chichester Gould May, M.A., M.B.Cantab. (Dublin);

Godfrey Forrest Reid, M.D.Dubl. (Orange Free State); John Frederick William Silk, M.D.Lond.; Charles Herbert Thompson, B.A., M.D.Dubl.; and Charles Percival White, M.R.C.S.

The following gentlemen were proposed for election:—Christopher Martin, M.B., C.M. (Middlesbrough); Benjamin Wilfred Thomas, L.R.C.P.Lond. (Welwyn); and George Porter Wornum, M.R.C.S.

RAPIDLY FATAL CEREBRAL HÆMORRHAGE OCCURRING IN A CASE OF PREGNANCY COMPLICATED WITH MULTIPLE FIBROIDS.

By William Duncan, M.D.

Dr. William Duncan showed the uterus and kidneys of this patient.

Mrs. S—, aged 42, was admitted into the Middlesex Hospital on October 25th, 1889, complaining of swelling of the abdomen. The catamenia began at twelve years of age. They had always been regular and lasting three days, and never were profuse. The patient had one child five years ago; no miscarriages. The last period ceased on June 10th. In August a small swelling was first noticed in the lower abdomen, which for six weeks before admission rapidly increased in size.

State on admission.—A florid-complexioned, spare woman.

Breasts enlarged, with dilated veins coursing over them, nipples prominent and areolæ darkened; thick creamy secretion could be squeezed from both.

Abdomen distended by central tumour of elastic nature, reaching an inch above the umbilicus. Surface covered

with numerous hard tumours varying in size from a small orange to a marble. Intermittent uterine contractions, uterine souffle, and fœtal heart all made out.

Per vaginam.—Mucous membrane port-wine colour. Os uteri looked downwards and backwards. Cervix enlarged, swollen, and soft. The cervical canal easily admitted two fingers. No ballottement.

Urine acid, sp. gr. 1030, trace of albumen.

The patient was kept in hospital for clinical purposes for three weeks, during which time fresh tumours were detected. Discharged from hospital November 15th.

Readmitted on December 25th (Christmas Day), at 12.30 p.m., in a restless and comatose condition.

The following history was elicited from a friend:—"Since leaving the hospital patient had been in very fair health and able to do her house-work daily; at no time had she had any fits or convulsions. On Christmas morning she got up at 8.30 a.m., feeling perfectly well, and continued so until 10.30 a.m., when she complained of sudden acute headache. At 11 a.m. she was found totally unconscious, tossing her arms about (especially the right), and breathing deeply and heavily. She was brought to the hospital in a cab.

State on admission.—Deeply comatose, but throwing arms and legs about, and moving the whole body; movements more marked on the right side. Breathing deep, loud, and noisy. Respirations 40. Pulse hard, of small volume, 110. No relaxation of sphincters. The eyes, face, and head were turned to the left.

Catheter passed, and ℥ss of urine loaded with albumen drawn off.

Dr. Duncan was at once sent for, but being absent from town, Dr. Boxall arrived at 1 p.m.

The patient was now more deeply comatose; respirations 48, and there was total paralysis of arms, legs, face, &c. The temperature was not taken.

The face was of a purple hue, and so venesection was performed, five ounces of dark blood being removed, fol-

lowed by slight improvement, which was only of short duration. It was then decided to empty the uterus. The cervix was easily and rapidly dilated by means of the hydrostatic bags, and version performed, but death resulted before the delivery could be completed.

Post-mortem examination.—Subject fairly well nourished. Considerable post-mortem staining. On bend of right elbow was a venesection-wound closed by recent lymph; the vein (median basilic) was filled by a clot.

On opening the abdomen a few ounces of clear serous fluid escaped. The uterus (containing many firm subserous, and interstitial fibroids averaging an inch in diameter) was found adjacent to the abdominal wall and reaching to within a finger's breadth of the umbilicus. The organ with the vagina and appendages was removed and laid open from behind; the incision showed the uterus to be partially contracted. The placenta and membranes of a fœtus of less than full time occupied its cavity, the former being situated at the left angle and posteriorly, so that a small fragment of it was cut off by the incision; the placenta seemed to be placed over the orifice of the left Fallopian tube.

Ovaries and tubes were normal.

Brain.—Considerable venous congestion was noticed on removing skull-cap. On removing brain a very extensive hæmorrhage was found, seemingly into the subarachnoid space, which extended over the whole base of the brain, and upwards, laterally, to the temporo-sphenoidal lobes.

On incising the brain a very extensive hæmorrhage was discovered, apparently into the substance of the island of Reil on the right side; it penetrated deeply into the lateral and fourth ventricles.

About five ounces of blood had escaped from the vessels.

Heart.—Tricuspid valves thick and slightly puckered; apparently competent. Mitral valves much thickened; on one was a small vegetation with loosely attached thread of fibrin; valve seemingly competent.

Left kidney.—Capsule very adherent to kidney and to

surrounding connective tissue. Surface of organ puckered and covered with multitudinous cysts. Cortical substance greatly wasted. Many more cysts seen within the kidney on section. Medullary substance normal.

All other organs normal.

MÜNCHMEYER'S TRANSFUSION APPARATUS.

By J. Matthews Duncan, M.D.

Dr. Matthews Duncan exhibited Münchmeyer's instrument for transfusion in cases of nearly fatal hæmorrhage, according to a plan of his and Leopold's ('Archiv für Gynäkologie,' vol. xxxiv, pt. 3, p. 38). By this a hypodermic injection of sterilised water at blood heat, and bearing in solution chloride of sodium (a drachm to a pint), was made to the extent of one, two, or three pints. The effects were said to be as good as when the fluid was injected into the veins. He had long recommended watery injection directly into the veins by a common syringe; but this method of Münchmeyer's was simpler and less dangerous. The injected water had to be diffused by manipulation, and it was rapidly absorbed. Transfusion of ordinary kinds had excited and maintained great enthusiasm in the profession, but its use was unsatisfactory and very dangerous. It had never come into practice as an established resource; and no wonder, for a late systematic writer, while recommending it, said it killed more than it cured. Science had done much to explain the bad results that frequently followed it; and science indicated water to fill the void caused by hæmorrhage to be the best fluid to use—the safest. He hoped that Münchmeyer's method of subcutaneous injection would prove a useful and handy resource in the terrible post-partum hæmorrhages. Münchmeyer and Leopold injected into the loose cellular tissue near the scapula.

OVARIAN CYST, PARTLY DERMOID.

By C. H. Carter, M.D.

TWO DERMOID CYSTS FROM THE SAME PATIENT.

By C. H. Carter, M.D.

LIPOMA REMOVED FROM LEFT LABIUM MAJUS OF A WOMAN AGED FORTY.

By C. H. Carter, M.D.

SHOULD PREGNANCY BE TERMINATED PREMATURELY IN CASES OF PHTHISIS?

By WILLIAM DUNCAN, M.D.,
OBSTETRIC PHYSICIAN TO THE MIDDLESEX HOSPITAL.

(Received October 22nd, 1889.)

THIS was a question I had to consider lately when asked by my friend Dr. T. Cranstoun Charles to induce abortion for a medical man's wife the subject of advanced phthisis.

The history of the case is as follows:—Mrs. B—, aged 27, was married four years ago and has had two children, the first being born ten months after marriage; the second, sixteen months after the first. The catamenia commenced when she was thirteen, and were always irregular, there often being amenorrhœa for three or four months. Both her confinements were prolonged and difficult, owing to the large size of the children's heads: the first lasted thirty-six hours, and the second twenty-five. Chloroform was given for many hours, but the forceps was not used. The placenta of the second child had to be removed piecemeal. There was an absence of milk in the breasts after both labours.

Family history.—One maternal uncle died of phthisis; all other relatives healthy.

Chest history.—Had double pleurisy resulting in pleuritic adhesions seven years ago.

Four years ago (a few months before marriage) there was cough with slight crepitation at the left apex; the physical signs increased during the ensuing pregnancy, and after the birth of the child there was a decided change for the

worse: the expectoration was more profuse; the *râles* were much louder, and covered a large area of the left lung, the right lung remaining sound.

After the second confinement she was laid up in bed for nearly three months, the lung signs getting gradually and steadily worse.

About two years ago she was seen by Dr. Quain, who urged the necessity of no further pregnancy taking place.

Four months ago a cavity was detected beneath the middle of the left clavicle; the lower half of the left lung and the upper part of the right, near the sternum, showed crepitation. At no time had there been much blood in the sputum, but occasionally a small clot had been expectorated.

In August last, as she had missed two periods, and believing herself pregnant, she came up from Worcestershire to consult Dr. Quain again; in his absence she was examined by Dr. Allchin, who gave it as his opinion "that her life would be shortened if the pregnancy were allowed to go on."

Taking all the conditions present into consideration, I agreed with the opinion above expressed, and consented to empty the uterus; this I did as follows on September 14th. Dr. Cranstoun Charles and Dr. B— (the husband) were present. Dr. Frederick Hewitt gave chloroform.

The patient was placed in the lithotomy position, the vulva and vagina well washed with a 1 in 2000 solution of mercuric chloride; Sims's speculum introduced and the cervix firmly seized by a volsella. Next, the cervical canal was easily and rapidly dilated with Hegar's dilators up to No. 22, when the finger was inserted and the fœtus and membranes removed; then the whole uterine mucous membrane was carefully curetted to remove all the deciduæ, the cavity irrigated with a hot mercurial douche, and lastly a twenty-grain iodoform bougie was introduced into the uterus and retained there by a glycerine plug passed up to the os uteri. The operation lasted twenty-five minutes.

The subsequent progress was in every respect satisfactory, there was absolutely no pain whatever, no rise of temperature or pulse; there was a very slight sanious discharge for two days, after which there was none of any kind. The patient returned home exactly three weeks after the operation.

Remarks.—It seems to me that this subject requires careful consideration and discussion, for in not a single text-book on obstetrics that I have consulted can I find any mention of the induction of abortion or of premature labour in cases of phthisis.

It is now a well-recognised fact that when a phthisical woman conceives, the progress of the disease (instead of being retarded as old authorities held) is hastened; this is especially the case in young women between twenty and thirty years of age. I have seen several instances of it, and the case just recorded bears out the view.

Let us first consider early pregnancy in a phthisical woman, and then pregnancy when the child has become viable.

Now, in the case of early pregnancy in a woman the subject of well-marked and progressive phthisis, I think there can be no question that the proper course to pursue is (after carefully considering the case in consultation) to empty the uterus of its contents. And if this be done in the manner just described, taking every possible precaution against the occurrence of sepsis, there need be no fear of any ill effect ensuing.

But I will go further, and maintain that the same course should be adopted in a similar case, but where the phthisis is stationary; for when we consider that the disease may be lit into activity during any period of pregnancy, that as a result of the expenditure of vital force consequent on the process of labour at term, and the degenerative changes taking place during the puerperium, together with the fact that the woman's offspring will most likely be puny and weak, and probably die within a few months after birth, the advantages to the woman of having the uterus at once

and completely emptied far outweigh the advantage of going on to term for the sake of a living child, especially as delivery at term is almost certain to be followed by a more or less rapid downhill progress.

When, however, we come to consider the case of a phthisical woman seen for the first time when the child is viable, the question arises in one's mind whether the better course to adopt would be to let the pregnancy and labour terminate naturally or to induce labour prematurely. Personally, I should feel disposed in a case of this kind to be guided in my treatment by the lung-condition.

If the phthisis at this advanced period of pregnancy were quite stationary (though well marked) I should wait until full term had nearly arrived, and then, in order to save the patient all suffering and the strain on her system consequent on natural delivery, I should have her anæsthetised, and (whilst carrying out every antiseptic precaution) then dilate the cervix, first using graduated bougies (such as Hegar's), followed by the hydrostatic dilators until the cervix was sufficiently expanded to permit of delivery by the forceps or version as the case indicated, performing what may be termed "accouchement rapide" as distinguished from "accouchement forcé."

If, however, the phthisis were markedly advancing, it seems to me that the interests of the mother and child would be best served by effecting delivery in the above-mentioned manner without delay, not waiting until the full term had been reached.

Dr. CULLINGWORTH apologised for intervening between the paper and the discussion. He thought it, however, due to the Fellows to place them in possession of a few additional facts in reference to the case before them. The patient in question (who was the wife of a medical man) had been originally sent to him with a note from Dr. T. Cranstoun Charles, stating that the case was one of pulmonary phthisis with pregnancy, and that it was necessary that abortion should be induced, and asking him (Dr. Cullingworth), in case he agreed with Dr. Charles's opinion, to

make arrangements for performing the operation as soon as possible. After seeing the patient he sought and obtained an interview with Dr. Charles. That physician then expressed his belief that the mischief in the lung would certainly increase if the pregnancy were allowed to go on, and that if, on the other hand, the pregnancy were terminated, the patient, notwithstanding that she had a cavity in the lung, could be cured. It further transpired that Dr. Charles had absolute faith in the efficacy of a new treatment that had been proposed for the cure of pulmonary tuberculosis, namely, the inhalation of heated air. He pointed out to Dr. Charles that the possibility of cure in such a case was a matter of opinion, and that, if an operation were performed, the responsibility would rest with the operator. He also reminded Dr. Charles that it was by no means an established fact that the chances of life in a consumptive patient were improved by the induction of abortion, which was a most serious thing to do under any circumstances, and particularly so here, for he was not aware of the operation having ever been undertaken on similar grounds. He regretted that he could not accept Dr. Charles's views, or acquiesce in the operative treatment he proposed. He had no alternative, therefore, but to decline to undertake it. He had heard no more of the case until that evening. He was very glad Dr. W. Duncan had brought the subject before the Society.

Dr. HERMAN asked upon what grounds did Dr. W. Duncan base his opinion that the existence of pregnancy hastened a fatal termination in cases of phthisis. He (Dr. Herman) was inclined to the same opinion, but his opinion was only based on vague impressions derived from his own experience; he could not adduce any evidence in support of it, nor could he refer any one who held a contrary opinion to any convincing collection of cases. If Dr. Duncan could produce or quote some scientific evidence showing the effect of pregnancy on phthisis, he would do a great service. If Dr. Duncan's view were clearly proved, he (Dr. Herman) thought the induction of abortion would be proper treatment.

Dr. PLAYFAIR said that while he must admit the interest and novelty of Dr. William Duncan's suggestion, he could hardly believe that it was one which either would be or ought to be generally acted on. He presumed that Dr. Duncan did not intend to recommend the induction of abortion in incipient stages of phthisis, for such a course would lead to the greatest possible abuse. Dr. Duncan had safeguarded against his own action by very properly having a preliminary consultation, and subsequently by submitting it openly to the criticism of the Society. It must be obvious, however, that there might be many who would trust to such a course without much precaution, and who would shelter themselves under the authority of Dr. W. Duncan's name. In advanced cases the question was different. It seemed

to him, however, that there was no sufficient ground for concluding that putting an end to her labour would materially check or alter the progress of the disease. Moreover, it was a very open question whether, under such circumstances, the mother being already the subject of advanced organic disease, the interests of the child should not be taken into consideration. On the whole, therefore, while he admitted the force of some of Dr. Duncan's arguments, he believed his case was a dangerous precedent, and that the course adopted by him would not be generally approved or followed.

Dr. PRIESTLEY said that on one point they would all probably be agreed, viz. that no collateral consideration such as those which had been alluded to by Dr. Cullingworth should be allowed to influence practitioners in determining whether it was right to induce abortion. In a paper read before the Society some years ago, "On the Induction of Abortion as a Therapeutic Measure" (vol. xxii, 1880), he had laid it down as a rule, to which there were practically few exceptions, that abortion was only a legitimate operation when the life of the mother was so imperilled by the continuance of pregnancy that emptying the uterus presented itself as the only alternative to save the patient. Not having seen the case in which Dr. William Duncan had provoked abortion because the woman was suffering from phthisis, he could not express an opinion whether or no the measure had been imperatively called for by the urgency of the symptoms; but judging from experience in such cases, it was difficult to conceive any circumstances in which phthisis, without some other complication, would justify the proceeding. It was well known that phthisical patients had a fertility which was almost abnormal, and he believed it was the celebrated Cullen, of Edinburgh, who first asserted that phthisis in these patients seemed to be suspended or retarded by the changes going on in the gravid uterus. A whole string of authors had testified to the same fact; but only recently a M. Gaulard, in France, had endeavoured to controvert this assertion, and he averred that there was no pause in the progress of tubercular disease in the lungs during pregnancy, any more than in other diseases of the lungs during that condition. But, even if this question were better determined, one naturally asked what was to be gained by the induction of abortion in phthisical patients. One could not pretend that it would conduce to the cure of the patient, and it was very doubtful if the operation would place her in a better position after it was completed. Rather one would fear that the irritation provoked by it, when brought on by such a method as had been described in this case, or indeed by any other method, would still further impair the strength of the patient, and put her in a worse position than if allowed to go to the full time. As at present informed, therefore, he should not

be disposed to sanction abortion in patients suffering from phthisis pulmonalis as a general therapeutic measure.

Dr. CHAMPNEYS said that, like Dr. Herman, he fully expected that, in bringing such a question forward, Dr. W. Duncan would have investigated the facts, and given a summary of them. The influence of pregnancy on phthisis was still obscure; it was improbable that any sweeping statement could be made, but such an investigation might throw the cases into certain groups, depending on such facts as the kind of disease and its stage. In his remarks introductory to the discussion, the President had well divided the questions raised in the paper into pathological and ethical. As regarded the former we had little in the way of certainty; we did not know what good abortion did, nor what harm pregnancy did. As regarded the ethical question, he thought it was well recognised that, where the mother's life was practically forfeited, her claims, as against those of the fœtus, deserved less attention. The classical instance of this was that of a woman affected with cancer. The life of a phthisical woman was also generally forfeited. In contrast to this we had such a disease as eclampsia, which depended on pregnancy, and which would probably cease on the cessation of pregnancy, leaving the woman (it might be hoped) in perfect health and with a fair prospect of remaining so in a future pregnancy. In urgent cases of this sort it was recognised as a proper proceeding to procure abortion. A sentence in Dr. W. Duncan's paper referring to the production of an inferior child landed us in a very doubtful territory. If we were to procure abortion in any case in which the character of the parents would lead us to expect a child mentally, morally, or physically undesirable, we should have our hands full. Then, again, how many times is Dr. W. Duncan prepared to procure abortion in the same woman? These phthisical women often conceive very rapidly. How soon did he expect this lady to return to him with a similar request? If he was right this time, he was logically bound to procure abortion for her as often as she was pregnant. Lastly, the speaker could not see any reason for "accouchement rapide" (*i. e.* accouchement forcé without cutting) in such cases. He thought that, with all our antiseptic precautions, such a procedure must involve marked additional risk, and that the woman would get on far better if left alone, and given chloroform if necessary, during the second stage in the usual way.

Dr. MATTHEWS DUNCAN said that it was not established that pregnancy injuriously affected the progress of phthisis. A great deal of research had been made on the subject, which was one extremely difficult of solution—almost insoluble—the result being uncertainty as to whether good or evil came from pregnancy in phthisical women. Certain it was that such women did bear fine healthy children; and recent inquiries as to the infectiveness of

tubercle did not tend to increase the fear of danger to the fœtus from its consumptive mother. He would, as a rule, deprecate the induction of abortion or premature labour in cases of phthisis; and he did not look with favour on the rapid method of delivery as described, regarding it as not the best, if delivery were decided on.

Dr. Amand Routh thought that most obstetricians had observed that the process of lung-destruction in phthisis during pregnancy was at a standstill, but became very rapid during the subsequent lactation. Was it not, therefore, more rational to prevent lactation than to induce abortion? Possibly in cases of phthisis, during the later months of pregnancy, when the child was viable, and dyspnœa became urgent, premature labour might be wisely induced, but not during the earlier months.

Dr. Leith Napier had seen a considerable number of cases of pregnancy occurring in phthisical women. He was disinclined to accept the view that pregnancy invariably hastened the progress of phthisis. Although he might mention several cases illustrating the converse, let one suffice. A patient seen twelve years ago, suffering from well-marked lung disease—so ill, indeed, that she had practically but one lung—fell pregnant. Grave apprehensions were entertained as to the prognosis. Happily these were contradicted by her distinct improvement during pregnancy, and after parturition she convalesced well. She went abroad, was still alive, and in fairly good health. When abortion occurred naturally in a phthisical woman, various pathological factors besides the general anæmia had to be considered. Abortion in a phthisical patient, in his experience, was usually a very grave matter; it caused great strain on the patient's strength. In three such cases he had met with, the lung disease progressed rapidly, and the deaths were unquestionably hastened. It might be that with a uterus unaffected with local disease, and in an early stage of the complaint, artificial abortion would have different results. Yet, all things considered, he was not prepared to accept Dr. William Duncan's suggested line of treatment. He thought a waiting policy the wisest.

Dr. Jamison would like to ask Dr. William Duncan if he himself acquiesced in the reasons given for the necessity of performing this operation. They were three. First, that if premature labour were induced, the tubercular disease from which the patient was suffering could be cured by hot inhalations. Secondly, that the children of phthisical women lived a very short time after their birth; and thirdly, that pregnancy accelerated the progress of phthisical disease. Dr. Jamison was inclined to join issue on each of these assumptions. Surely to speak so confidently of the cure of phthisis by any method of treatment, even by hot inhalations, was not in accordance with the everyday experience of phthisis. He only wished phthisis were as easily

curable. That the children of phthisical mothers only lived a short time after birth was a statement not in harmony with the experience of every one in this room. He had known over and over again of the children of phthisical parents growing up to adult life. In one case in his experience five healthy children were born of a phthisical mother. Lastly, Dr. W. Duncan had admitted that there were no statistics to prove that pregnancy shortened the duration of phthisical disease, but he would like to say that most writers held just the contrary view. The only French writer, of any note, who thought pregnancy accelerated phthisis was M. Grisolle. His own impression was that given two phthisical women, in every respect equal in extent of disease, who say had only six months to live, if one became impregnated she would live over nine months. He would like to point out that Dr. William Duncan had not told them whether any improvement had taken place in the lungs of this lady, demonstrated by alteration in the physical signs after the operation. He attached no importance to the statement of the patient that she felt quite well, as the feelings of phthisical people were the most deceptive things in the whole range of clinical medicine. Therefore, putting all together, he thought no case had been made out for the extension of this operation, nor to minimise the feeling that it was one likely to be attended with grave abuse and danger.

Dr. Abraham Wallace, having apologised as a new member for obtruding himself on the Society after the long discussion, said that the subject was one which interested him, and he begged to offer Dr. W. Duncan his personal thanks for starting the question. He congratulated him on the result of the treatment in the individual case, but could not accept his general conclusions. He had had, as a practitioner of midwifery and as a teacher of its science, considerable difficulty in formulating the principles of treatment necessary for the conduct of his practice as well as for the instruction of students. No doubt a great deal had been written on phthisis complicating pregnancy, expressing very discordant opinions as to the effect of pregnancy and parturition on the progress of phthisis pulmonalis; but, so far as he knew, there were not any indications given in regard to treatment in the accepted text-books of midwifery. Considering the advance made during recent years in the investigation of the pathology and treatment of phthisis, he thought that this particular subject was deserving of serious consideration. He deprecated the idea of the report of the discussion of this evening going forth to the profession as an expression of the views of this Society, whose influence was so extensive, and suggested that the subject lay, as it were, on the border-land of pure medicine and midwifery, and ought not to be approached from the standpoint

of the obstetric specialist merely, but required to be looked at in all its aspects.

Dr. WILLIAM DUNCAN (in reply) said he was very glad the question had evoked such an active discussion, but at the same time he could not quite agree with the opinions expressed by the various speakers. He must dissent from the assertion that "pregnancy should not be terminated unless it threatened the patient's life;" and he mentioned the case of a patient in the Middlesex Hospital who last year had severe puerperal eclampsia, and recently, being five months pregnant, was readmitted with acute nephritis, double optic neuritis, and retinal hæmorrhages. The ophthalmic surgeon having said that if the pregnancy were allowed to go on the patient would probably become blind, Dr. Duncan had no hesitation in emptying the uterus. He thought that the induction of abortion gave a distinct advantage by doing away with the dangers connected with parturition and the puerperium. He did not, of course, mean that all cases of phthisis complicating pregnancy called for interference, but each case must be judged on its merits, and after careful consultation with another physician, who should share the responsibility. Neither did he mean that, having once terminated pregnancy in a given case, the same treatment should be pursued if impregnation subsequently took place. On the contrary, if the patient neglected the warning given her, she (being entitled to choose) took the responsibility, and must submit to the risks. Dr. Duncan regretted he could give no statistics, either proving that life is shortened in these cases, or showing the effect of pregnancy on a phthisical woman; but he was one of those who did not believe much in statistics: his statements on these points were those given in all the leading works on obstetrics.

FIVE CASES OF PUERPERAL ECLAMPSIA, ESPECIALLY ILLUSTRATING THE TEMPERATURE AND URINE IN THIS DISEASE.

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(*Abstract.*)

Five cases are detailed, of which the chief features are as follows:

Case 1.—First pregnancy; premonitory symptoms a few hours only before fits; convulsions commencing during first stage of labour at term, not ceasing with delivery, ceasing after morphia; seven fits in all; temperature rising slightly during fits, falling after cessation of fits; diminution in quantity of urine during fits; diuresis after delivery and cessation of fits; urine during fits nearly solid with albumen (much paraglobulin), blood, and casts; rapid disappearance of albumen and blood after delivery; diminished elimination of urea during fits; increased elimination of urea following delivery. Complete recovery.

Case 2.—Second pregnancy; premonitory symptoms three weeks before fits; intra-uterine death of fœtus; fits coming on at eight months' pregnancy; eight fits; fits ceasing after morphia, and before delivery; slight pyrexia, continuing four hours after last fit, then abating; polyuria throughout, temporarily increased after delivery; urine containing half its bulk of albumen (much paraglobulin); increase of albumen following fits; albumen diminished after delivery, but still persisting months afterwards; diminution of urea-elimination during

fits; restoration of urea-excretion to normal, commencing after cessation of fits; retinitis albuminurica.

Case 3.—First pregnancy; premonitory symptoms forty-eight hours before onset of fits at five months' pregnancy; about sixteen fits; spontaneous premature delivery; urine solid with albumen (largely paraglobulin); cessation of fits, fall of temperature, and diminution in albuminuria following administration of morphia, and preceding delivery; diminution of urine and of urea-excretion (both absolute and in proportion to the urine) during period of fits; re-establishment of urine and urea-excretion, commencing after cessation of fits and before delivery. Recovery.

Case 4.—Tenth pregnancy; symptoms a week before fits, at seven months' pregnancy; three days' treatment by milk diet in hospital before fits; retinitis; four fits only; morphia given after second fit; death by coma five hours after last fit; subnormal temperature; fits preceded and accompanied by slightly increased diuresis; albuminuria diminished by rest and milk diet; fits accompanied and followed by increase of albuminuria and hæmaturia; steady diminution in urea-percentage, preceding fits and continuing till death; absolute urea-excretion diminished throughout, but no greater diminution preceding or accompanying fits. No autopsy.

Case 5.—First pregnancy; symptoms about thirty-six hours before fits, at eight months' pregnancy; intra-uterine death of fœtus; twenty-four fits in all, extending over sixty hours, ceasing before delivery; delirium for forty-eight hours after fits; slight pyrexia, subsiding before cessation of fits; during period of earlier fits urine solid with albumen, and diminished in quantity, but percentage of urea not diminished; increase in quantity of urine and percentage of urea, and diminution of albuminuria before cessation of fits. Complete recovery.

The author points out the differences between the cases themselves and between them and other published cases, and draws the inference that puerperal eclampsia is a disease not having a uniform clinical history any more than a uniform morbid anatomy.

In vol. xxix of the 'Transactions' of this Society I contributed a paper in which two cases of puerperal eclampsia were related. They were published because the course of the renal function had been observed with exceptional care. I now submit five more cases in which similar observations have been made.

CASE 1.—*Primigravida; premonitory symptoms a few hours only before fits; convulsions commencing during first stage of labour at term, not ceasing with delivery, ceasing after morphia; seven fits in all; temperature rising slightly during fits, falling after cessation of fits; diminution in quantity of urine during fits; diuresis after delivery and cessation of fits; urine during fits nearly solid with albumen (much of it paraglobulin), blood, and casts; rapid disappearance of albumen and blood after delivery; diminished excretion of urea during fits; increased diuresis and excretion of urea during lying-in period; complete recovery.*

C. L—, aged 22, single, pregnant with her first child, admitted into the General Lying-in Hospital, July 28th, 1888. I have to thank Mr. G. A. Pratt, house physician, for the notes of the case and the analyses of the urine.

Previous history.—Said to have had scarlet fever twice and measles twice when young; each time recovery good. No other illness. Began to menstruate at fourteen; always regular. Slight pain preceded flow. Last menstruated from October 20th to October 24th, 1887; duration five days; quantity as usual. During first two months of pregnancy patient suffered greatly from retching and vomiting in the morning immediately on rising. Slight swelling of ankles during first two months of pregnancy; none since. During remainder of pregnancy felt very well. Has had a white vaginal discharge for the past three weeks. Movements of child first felt in February, 1888.

History immediately preceding admission.—Patient's account was that on July 20th, 1888, she went to bed,

feeling as usual, at 1 a.m. July 21st, woke feeling slight pain in abdomen, and water running away. Came to hospital, but was sent back as not in labour. At noon, 21st, patient felt very ill, "ill all over," but had no pain. At 1 p.m. slight "show." Admitted 1.30 p.m.

Mother's account.—Patient has seemed better than usual during pregnancy till the morning of 21st, when she complained of headache; she also put her hand to the front of her chest, saying she had a pain there through to her shoulders, a "sinking pain." Patient was sick three or four times during the morning, "the vomit being streaked with blood." The last time there was "only bile." Her bowels were open twice before leaving home.

She states that she was a "funny bluish colour" all the morning.

Has never had fits; there is no family history of epilepsy. Never complained of her sight.

On admission, July 21st, 1888, 1.30 p.m., patient pale, but not anæmic. Well developed. Nothing strange noticed in patient.

Vaginal examination.—Cervical canal obliterated, os size of florin, edges thin, dilatable. Slight show. Vertex in cavity of pelvis in second position. Membranes ruptured.

Douche and enema ordered, the latter acting freely. Patient passed urine several times, which was described by nurse as being normal in appearance.

Pains regular and fairly strong, increased after enema.

At 4.15 p.m., while patient was on the night-stool for the purpose of passing water, she was suddenly seized with twitching of face and hands, and became very stiff. No cry. A nurse who was standing at patient's side immediately placed her on the floor and prevented her from biting her tongue. The twitchings lasted three minutes; patient then began to foam at the mouth, becoming slightly livid, and remained in a drowsy condition about half an hour; she then had a short period of complete consciousness, answering questions readily.

During the fit the conjunctivæ were insensitive; the

pupils were equal and of moderate size, reacting readily to light. 4.30 p.m., Chloral Hydrate and Pot. Brom. āā gr. xxx, given per rectum. 5 p.m., second fit, lasted three minutes, affecting both sides of face and body. Remained drowsy about ten minutes. After fit pulse 100, rectal temperature 99·8°. 6.5 p.m., fit, duration three minutes. Pulse 98, temp. 99·8°. 7 p.m., fit, duration four minutes. Pulse 106, temp. 100°. 7.45 p.m., fit, duration four minutes. Pulse 120, temp. 100·6°.

The head having advanced to the pelvic outlet, at 8.30 p.m. chloroform was given and forceps applied. Child living. 9.3 p.m., fit, stronger than former ones, duration four minutes. Pulse 116, temp. 100·8°. 10.12 p.m., fit, stronger, duration three minutes. Pulse 132, temp. 100·8°. 10.40 p.m., seen by Dr. Herman, who ordered hypodermic injection of morphia, gr. ½. 11 p.m., sleeping.

July 22nd.—Patient still sleeping, has taken food in form of milk and beef-tea freely when roused. No more fits.

23rd.—About 2.30 p.m. yesterday afternoon patient woke up and asked if she might see her baby, and expressed herself as feeling very well. 11 a.m., Pulv. Jalapæ Co., gr. xxx, given. 8 p.m., rep. pulv. 12 midnight, bowels not acted, enema ordered. Has taken milk and beef-tea freely.

24th.—Very good night. Enema was repeated in the early morning, but only acted slightly. 10 a.m., Pulv. Jalapæ Co. ʒj. Patient says she feels very well, no headache.

Ophthalmoscopic examination.—Nothing abnormal detected. Takes food well.

25th.—Sleeps well. After two enemas bowels acted freely. Patient is now taking Mag. Sulph. ʒj in a mixture three times a day. There are bruises on arms and legs, caused during the fits.

26th.—Patient continues well. No headache. This morning her arms and upper part of chest are covered with

a vesiculo-papular rash, which itches greatly. Bowels very obstinate, only one slight motion after several doses of Mist. Sal. Aper., Enema, and Ol. Crotonis ♏j.

30th.—Patient very well; was up yesterday for first time. Bowels still obstinate, open once yesterday after Ol. Ricini ℥j, which was repeated in two hours.

August 5th.—Discharged.

Temperature.—On admission the temperature was 97·4°. After first fit it reached 100·4° in the rectum. After second and third fits it reached 99·8° in the rectum. It was taken just before fourth fit and found to be 100·4°, after the fit 100°. After fifth fit it reached 100·6°. After delivery it was 100·8°, and remained the same after sixth and seventh fits. From 10 p.m. on the 21st it was taken hourly till midnight on the 23rd. It continued at 100·8° for three hours after last fit, and then gradually fell; after this it never rose above 100° during patient's stay in hospital.

Urine.—All the urine was saved and examined during patient's stay in the hospital, with the exception of the 30th, when some was lost, the nurse failing to pass the catheter before stool. The urea was estimated with Squibb's apparatus, and on several occasions was independently examined by Dr. Herman with Jerrard's apparatus, and the results found practically to agree with those given by Squibb's process. For the first thirty hours the urine was hourly examined quantitatively for urea: after this it was all mixed together and examined once in the twenty-four hours.

At 11 p.m., July 21st, the bladder was found to contain 32 c.c. of urine, at 12 midnight 42 cc. When the catheter was passed at 2 a.m., July 22nd, no urine could be obtained, at 3 a.m. only 10 c.c. found in bladder, and none at 4 a.m. After this the quantity varied from 42 c.c. to 134 c.c., with the exception of 11 p.m. on 22nd, when only 10 c.c. could be obtained.

The *quantity* of urine passed per diem varied from 18 to 55 oz., the daily average being 35 oz. The first

day after delivery 35 oz. were passed, on the fifth day 49 oz., but on the sixth day only 18 oz. were passed in twenty-four hours. On the ninth day only 8 oz. of urine were saved, a considerable quantity being lost at stool on this day.

Specific gravity—The sp. gr. of the urine passed after the last fit was 1030, this being the highest recorded. One sample of urine passed the second day after delivery had a sp. gr. of 1005; this was not accompanied by any marked increase in quantity secreted. After this the sp. gr. varied from 1008 to 1020, the average being 1015.

Colour.—All the urine secreted while patient was having fits, and for two hours after the last fit, was port-wine coloured. The sample of urine drawn off three hours after last fit was a bright red colour. Ten hours after last fit the urine was amber colour.

Blood.—The quantity of blood in urine diminished rapidly after last fit, so that none could be detected with the eye ten hours after cessation of fits, but the ozonic ether and guaiacum test gave a faint blue ring eleven hours after last fit; none could be detected by this method twelve hours after.

Casts.—A few granular blood casts were found in the first samples of urine, but they were never numerous, and none were found after the first day.

Albumen.—The urine secreted while patient was having fits, and for next two hours, turned solid or nearly solid on boiling. The quantity of albumen then rapidly diminished, so that in three hours after the last fit it only contained one-third albumen, a faint cloud only being found seventeen hours after last fit.

Four samples of urine were examined after having been shaken up with sulphate of magnesia and filtered. The first sample examined in this way was drawn off one hour after last fit, and after the separation of the paraglobulin gave only half as much precipitate as that containing both serum-albumen and paraglobulin.

The next sample was drawn off eleven hours after last

fit, and gave a precipitate of one-sixteenth albumen, after separation of paraglobulin only a faint cloud could be obtained. The remaining two specimens each gave a faint cloud on boiling both before and after treating them with sulphate of magnesia, but not enough to deposit at the bottom of the test-tube. No trace of albumen could be detected when patient was discharged from the hospital.

Urea.—The urine secreted during period of fits contained 2·16, 2·09, and 2·36 per cent. of urea. In the first twenty-four hours after delivery the hourly percentage of urea excreted varied greatly, the lowest being 1·76 per cent. and the highest 2·84 per cent. In the second twenty-four hours the hourly secretion reached 3·38 per cent. In the first twenty-four hours after the fits had ceased, the quantity of urea secreted was 457 grains ; on the second day 310 grains. On the sixth day after delivery only 176 grains were secreted, which was much below the quantity secreted on any other day during patient's stay in hospital. The kind of food taken and the getting up of the patient had little or no effect on the quantity of urea secreted.

October 24th, 1889.—Child died from convulsions, aged two months. Patient now thinks herself quite well. Married September 15th, 1889. Last menstruation July 7th. Catamenia regular since discharge, no pain. Now thinks herself four months pregnant, About as sick this pregnancy as in the former pregnancy. Urine free from albumen.

This case favours the opinion that the pyrexia which accompanies some cases of eclampsia is due to the fits. While this patient was having fits the temperature steadily although slightly rose ; and when the fits had ceased it as steadily fell. The temperature during the lying-in period does not call for special remark.

The case also shows great diminution in the quantity of urine, and in the amount of urea excreted during the

fits. The quantity of urine and amount of urea varied nearly *pari passu*. After the fits the excretion gradually began to rise, but its re-establishment did not seem to begin until six hours after the fits had ceased. The last fit was at 10.12 p.m. Between 3 and 4 a.m. no urine was passed into the bladder. Between 4 and 5 a.m. urine again flowed into the bladder, and from this time the only change which took place was in the direction of increase.

The re-establishment of the excretion of urine is therefore not a condition which necessarily precedes the cessation of the fits. The fits cease first, and then, after an interval, the excretion of urea again rises to the normal.

In the five days following the re-establishment of the urinary secretion there was an excretion rather exceeding that which is usual in a healthy person lying in bed on low diet. This diuresis and augmented urea-excretion reached its height on the third and fourth days after delivery; on third day 40 oz. of urine, containing 520 grains of urea, were passed.

During the stress of the disease the hourly excretion of urea varied much, without the cause of such variation being discovered.

During the lying-in period there were great variations in the amount of urine on different days, but no cause for these variations was perceived.

Case 2.—*Secundigravida; premonitory symptoms three weeks before fits; fits coming on at eight months' pregnancy; intra-uterine death of fœtus; eight fits; fits ceasing after morphia, before delivery; slight pyrexia, continuing four hours after last fit, then falling; polyuria throughout, temporarily increased after delivery; urine containing half its bulk of albumen, largely paraglobulin; increase of albuminuria following fits; albuminuria diminished after delivery, but still persisting seven months afterwards; diminution in excretion of urea during fits; restoration of*

normal urea-elimination commencing after cessation of fits; retinitis albuminurica. (The notes of the case were taken by Dr. H. G. Lys, Resident Accoucheur, and Mr. J. H. Wilkinson, Clinical Clerk.)

C. K—, aged 25, admitted into the London Hospital January 16th, 1889.

Patient had never had fits before, nor had any of her relatives suffered from fits.

She had had one child twelve months ago, and during the last six weeks of pregnancy with it suffered from "dropsy." When admitted she believed herself to be eight months pregnant. She had suffered from morning vomiting throughout the whole pregnancy, worse for the last two months. Between two and three months ago her feet began to swell, and for the last three weeks her eyelids and face had been puffy. For three weeks she had complained very much of headache. Three weeks ago she had a fright. On December 26th the patient (who had obtained a card entitling her to the attendance of a maternity pupil in her confinement) sent to the hospital under the idea that she was in labour. The student who went to see her found no indication of labour, but advised her to come in on account of the dropsy. For the last two weeks she had slept badly. About a week ago she complained of not being able to see, and ever since then her sight had been getting worse. On the morning of admission she did not seem able to see a light. She also complained of "water in her eyes and at the back of her head." Throughout the night before admission she was delirious—her husband said "raving,"—getting out of bed and walking about; she did not recognise her husband that night. She had never complained of epigastric pain.

At 6 a.m. on the morning of admission the patient fell down in a fit in her room. A quarter of an hour after she had another fit; and a quarter of an hour after that a third fit. She had two more fits before admission,

the last one being in the cab at the gates of the hospital.

She was admitted at 10 a.m., January 16th. On admission she was very restless, continually turning from side to side and on to her hands and knees. A quarter of an hour after admission she had a fit. After this she lay more quietly, breathing heavily. Ten minutes afterwards she had a seventh fit. During this the administration of chloroform was begun, with the result of apparently checking the fit. After this the patient breathed heavily for about fifteen minutes, and then seemed to sleep quietly, only crying out at intervals. At 11 a.m. an enema of sulphate of magnesia was given, but produced no effect. At 11.45 a.m. a simple enema was given, which returned as it came. At noon the patient had so far recovered consciousness as to ask where she was and where her mother was. After this she became more restless and violent. At 2 p.m. an enema was given containing Chloral ʒss and Pot. Bromid. ʒss in some milk; and $\frac{1}{12}$ gr. of pilocarpin was injected subcutaneously. About 3 p.m. the patient slept for half an hour. At 4 p.m. the enema was repeated, and she became quieter. Before this she was so violent that she had to be held down.

About 4.30 p.m. she was seen by Dr. Herman, and the following note was made:—Patient very restless; breathing with short catching inspirations and long hissing expirations. Pupils were widely dilated before the administration of chloroform. Uterus hard, containing but little liquor amnii; fundus reaching two inches above the umbilicus. Much œdema of legs, slight of abdominal wall. On vaginal examination cervix softened, undilated. Pulse regular, 130 per minute, full and hard. Cardiac dulness reaches to the left, just outside nipple line. No murmur. No abnormal sounds over lungs. Liver dulness reaches from lower border of sixth rib to costal margins. Splenic dulness not increased.

At 4.40 p.m. the patient had another fit. Half a grain

of morphia was then given hypodermically. 8 p.m.—Since the morphia injection patient has been sleeping quietly, with noisy breathing; pupils small. Passage of catheter provokes violent movements of resistance. Os uteri size of a florin, membranes unruptured. 8.45 p.m., patient very violent when roused; Morph. gr. $\frac{1}{3}$ and Atropin gr. $\frac{1}{100}$ given hypodermically. 10.30 p.m.—Patient slept after last injection till ten o'clock, then became so restless that she had to be held down to prevent her from flinging herself out of bed. Chloroform was given. The os was found almost fully dilated, the membranes unruptured; the breech presenting, dorso-posterior. At 11 p.m. the membranes were ruptured, and delivery easily effected. The placenta was expressed without difficulty, and there was no unusual hæmorrhage. Fœtus decomposing. After delivery the chloroform-anæsthesia passed into sound sleep. She slept continuously throughout the night, only rousing when the catheter was passed.

17th, 9 a.m.—Patient sat up, said she was dry, and asked where she was. Between 9 and 11 a.m. took half a pint of milk. Throughout the rest of the day was quite quiet and rational, not even resenting the catheter. She continued to take milk well, and excepting when roused for this purpose and the catheter, slept throughout the day. She recognised her friends. There was much œdema of face, neck, and legs, although the latter had diminished in size since admission.

18th.—Slept well through the night. Occasional cough throughout night and to-day. Œdema less. Pulse 120 to 130. Ophthalmoscopic examination made, and appearances of neuro-retinitis found. Slept throughout the day except when roused. Bowels open twice, loose. No vomiting, no complaint of headache. Occasional rhonchi in lungs, no other physical signs. Still taking milk only.

19th.—Slept well last night, and to-day is not drowsy. Asks for more to eat. In the afternoon severe headache came on, left-sided, lasting till evening; patient says the headache she has of late suffered from has always been

of this kind. Pulse less frequent. Tongue dry. Bowels open five times, motions green and very offensive. The eyes were examined by Mr. Waren Tay. He reports that the changes are singular on account of the large size of the white patches, their semi-transparent rather than chalky appearance, and the small number of smaller glistening patches and absence of streaks; also for the small number of hæmorrhages, of which there are only a very few small ones in both eyes; the white patches are all on the outer sides of the discs, but not chiefly in the yellow spot regions (where there are only a very few small glistening patches), but rather distributed down and out, and up and out, from either disc.

20th.—Bowels open six times since yesterday; character of motions same. Complained of occasional abdominal pain throughout the night, less during the day. No headache or drowsiness now. Cough and lung signs about the same. Skin dry. Pulse about the same. Takes food well. Slight tenderness over right lower abdomen.

21st.—Bowels open five times in the twenty-four hours; stools no longer green, but brown and liquid. Some griping pain in abdomen. No headache, slightly drowsy in morning.

22nd.—No more abdominal pain. Bowels only open once; motions brown and loose. Pulse 112. No headache or drowsiness. Her progress after this was entirely satisfactory.

30th.—Allowed to get up.

February 8th.—Vision $\frac{4}{200}$; reads 20 Jaeger. Discharged.

Temperature.—The temperature at 3 p.m. on the day of admission (the patient then having had seven fits, the last of them about four and a half hours previously) was 99°. At 5 p.m. (the patient having in the interval had another fit) it was 100°. From this time the temperature was taken every hour or two hours (according to circumstances) until the end of the third day. Its maximum

during the stress of the disease, 100·6°, was reached at 9 p.m. on the day of admission. Then it sank, reaching normal at 1 a.m. During the whole of the next day it did not exceed 99·2°. On the third day there was a rise of temperature, beginning at 6 a.m. and reaching a maximum of 101·3° at 2 p.m. Then it again fell, and at midnight was 99·5°. There was no conspicuous change in patient's condition to account for this rise of temperature. After this the temperature remained normal.

Urine.—As far as possible all the urine excreted was collected. The catheter was passed on admission, and every two hours subsequently. Some urine was passed into the bed in the intervals ; this of course could not be measured, nor could that which was passed by the patient along with the motions. The quantity withdrawn by the catheter, measured and shown on the accompanying chart, is therefore less than the total quantity excreted. The number of motions is shown on the chart, so that an idea may be formed of the amount of urine which escaped measurement by accompanying them.

Quantity.—During the first twenty-four hours 74 oz. were withdrawn ; in the second twenty-four hours 52 oz. ; in the third twenty-four hours it reached 118 oz. During the seventy-two hours which followed there was diarrhœa, and this probably accounts in part for the diminution in quantity on these days which the chart shows. During the three periods of twenty-four hours to which this applies, 58, 22, and 22 oz. were the quantities withdrawn. Then the chart shows a gradual increase in quantity each day, till on the eleventh period of twenty-four hours, 86 oz. were collected. During the remaining four days in which the urine was measured the daily quantity was from 56 to 60 oz.

The quantity of urine was thus throughout, if allowance be made for unavoidable incompleteness of collection, above the average of health. This increase in the quantity passed was present during the height of the disease, while

the patient was having the fits. Delivery was followed by temporarily increased diuresis.

Specific gravity.—As might have been expected from the increased amount of urine, its specific gravity was low. It was especially low while the patient was having fits. That of the urine drawn off at the time of admission and subsequently up to 4 p.m. (the last fit being between 4 and 5) was only 1007. At 6 p.m. the specific gravity of the urine had risen to 1010, and at 9 p.m. to 1012. Thus increase in the density of the urine coincided with cessation of the fits. The diminution of the quantity of urine on the fourth, fifth, and sixth days, which the table shows, although no doubt partly accounted for by much of the urine having been lost with the stools, yet would seem partly due to greater concentration of the urine; for at the same time there was a rise in the specific gravity, which reached its maximum, 1014, on the fifth day. This specific gravity was again reached on the seventh day, the quantity of urine passed on that day, exclusive of that lost with one action of the bowels, being only 36 oz. After that the specific gravity stood at 1012 or lower throughout the patient's stay in hospital. The specific gravity was thus below the average of health much in proportion as the quantity of urine was above that average.

Albumen.—The amount of albumen present in the urine was measured by precipitating it with heat and nitric acid, letting the urine stand, and then roughly measuring the amount of precipitate by the eye. The urine drawn off on admission gave a precipitate of quite half its bulk of albumen. The next specimen, drawn off at 2 p.m., did not contain quite so much—about three eighths of its bulk. That drawn off at 4 p.m. contained still less—about one third. Between 4 and 5 the patient had a fit, and the urine drawn off at 6 p.m. contained two thirds albumen, and that at 7.20 p.m. three quarters albumen. This increase in the amount of albumen following a fit is noteworthy. There was not quite so much in the urine drawn off at 9 p.m., about one half; and in that at 10.40 p.m. (shortly before

delivery) two thirds. At 1 a.m.—that is, after delivery—it had sunk to one third. It then went on diminishing till, at 2 p.m. the next day, there was only one sixth. After this the amount again increased a little, and throughout the rest of the patient's stay in hospital the urine contained from a quarter to a third of its bulk of albumen.

Specimens of urine were from time to time tested to ascertain the proportion in which the albumen was composed of *paraglobulin* and *serum albumen* respectively. The specimens passed on the day of admission showed, on treatment with sulphate of magnesia, a considerable loose, flaky precipitate of paraglobulin, amounting, when the urine had been allowed to stand, to about one third of its bulk. After separating the paraglobulin by filtration and treating the filtered fluid by boiling and nitric acid, there was still an abundant precipitate. Specimens drawn off at 7 a.m. and at 6 p.m. on the day following admission (and delivery) showed, on treatment with sulphate of magnesia, only a small flaky precipitate, too small to be estimated by bulk. A similar small precipitate was obtained from urine passed on January 18th and 19th. On January 21st (the sixth day) the quantity of paraglobulin had sunk to a mere trace, and this trace was present throughout the rest of the patient's stay in hospital.

Deposit.—The first two specimens of urine contained very little, if any, deposit. In all the subsequent specimens there was a flaky white deposit, except on the second and third days, when the deposit was red, probably due to a slight admixture of blood, possibly produced by the frequent use of the catheter. Microscopically the deposit throughout consisted of abundant granular casts and uric acid crystals.

Urea.—On admission—that is, while the fits were recurring—although the quantity of urine was above the average, the amount of urea eliminated in it was much below the average ; not only below the average of health, but below the amount that one would have expected to find in urine of that specific gravity. During the first twenty-four

hours only 168 grains of urea were found to have been excreted; in the second twenty-four hours 183 grains. Then the chart shows that the urea-excretion ran up to its normal quantity, 484 grains being eliminated in the third twenty-four hours. After this the curve showing the urine quantity and that of the urea quantity run close to one another, while on admission the urea curve is far below the urine curve. The *hourly variation* of the urea percentage is shown on the same chart as the hourly temperature. On admission it was only ·3 per cent., and it remained at this until after the last fit had occurred. Then it immediately began to rise, and rose with tolerable regularity, till twenty-eight hours after delivery, *i. e.* thirty-six hours after the last fit. Delivery does not seem to go with any marked change in the urea curve.

Sugar.—The urine was many times examined for sugar, but none was found.

Reaction.—Its reaction was acid throughout.

February 19th, 1889.—Patient came back to report herself. Urine pale, acid, sp. gr. 1011; urea 1·1 per cent.; proportion of one fifth albumen; no paraglobulin; no sugar.

August 3rd, 1889.—Patient looking well, not anæmic. Thinks herself well, except that sight is imperfect. Urine containing one third albumen.

In this case, although rise of temperature followed the fits, it did not follow so immediately as to favour the view that it was directly an effect of the fits. The case is remarkable and exceptional in that the quantity of urine was increased instead of diminished.

The cessation of the fits was followed by immediate increase in the percentage of urea in the urine; but restoration of the urea excretion to the normal amount was not complete till twenty-four hours or more after the cessation of the fits.

CASE 3.—*Primigravida; premonitory symptoms forty-eight hours before onset of fits at five months' pregnancy; about sixteen fits; spontaneous premature labour; cessation of fits; fall of temperature and diminution of albuminuria following administration of morphia and preceding delivery; diminution of urine and of urea-excretion (both absolute and in proportion to the urine) during fits; partial re-establishment of urine and urea-excretion after cessation of fits and before delivery; urine solid with albumen, largely paraglobulin.* (Reported by Dr. H. G. LYS, Resident Accoucheur.)

M. G—, aged 20, admitted into the London Hospital March 3rd, 1889.

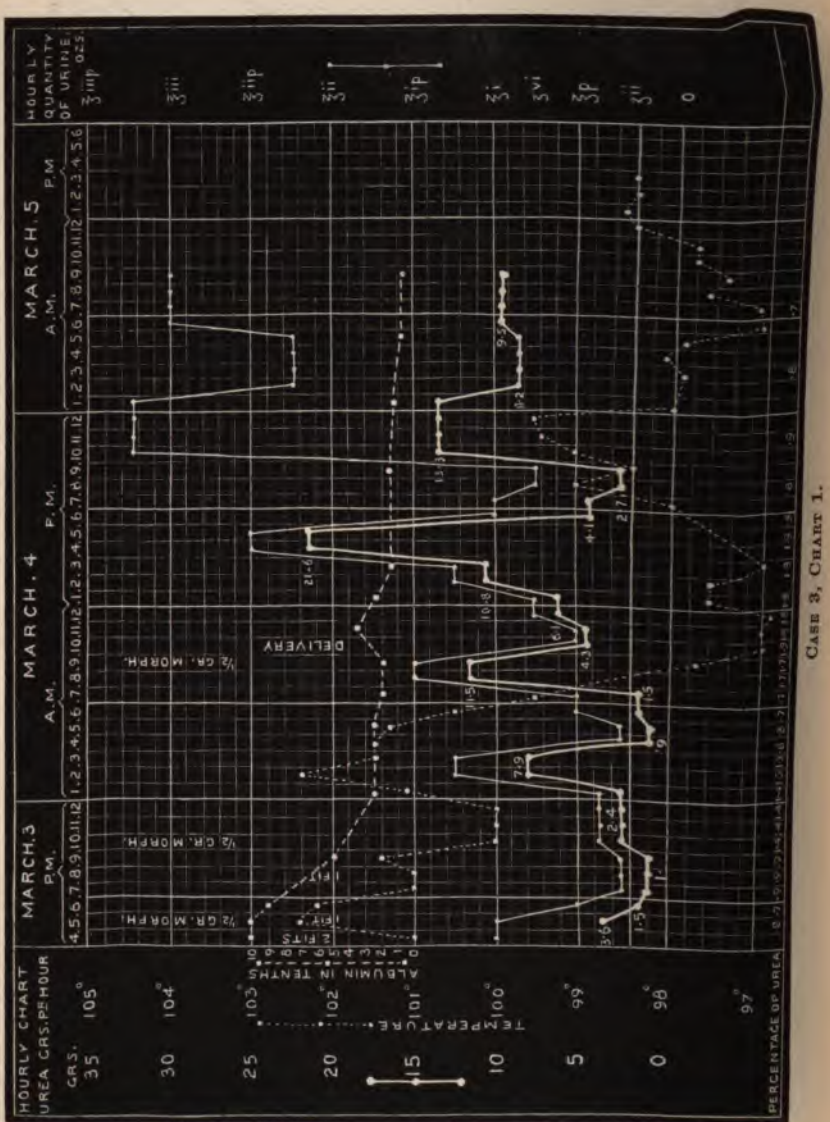
Patient had always previously had good health. No fits. She was married eleven months ago, and miscarried two months after marriage. She now thinks herself about six months pregnant.

About 7.30 a.m. on March 1st she began to complain of headache and pain in the lower abdomen. On March 2nd her eyelids were noticed to be swollen, her headache was worse, and she had much pain in the lower abdomen and loins. About 10.30 p.m. on that evening she began to feel sick. On March 3rd at 3 a.m. she began to vomit, and vomited on and off till 9 a.m. At 9 a.m. she had a fit. During the day other fits recurred, the patient being said to have had about a dozen. She was reported to have passed a good deal of water into the bed since the fits began.

She was admitted at 3.45 p.m. At 4, 4.30, and 5 p.m. she had epileptiform seizures. Each fit was preceded by heavy breathing for about five minutes, and began by twitching of the thumbs, which was succeeded by general clonic spasms. Strong contraction of the uterus was noticed during the fits.

At 5.15 p.m. half a grain of morphia was given hypodermically.

At 6.30 p.m. the following note was made:—Patient



CASE 3, CHART 1.

lying quiet, but constantly groaning. Pulse 88, full and hard. Patient florid as to complexion and mucous membranes. No marked œdema of face; slight œdema of legs. Cardiac dulness bounded on the left by nipple line. No murmur; no abnormal sounds over lungs. Hepatic dulness not increased. Spleen not felt. Fundus uteri a finger's breadth below the umbilicus. Pains occurring every quarter of an hour or oftener. Os uteri just admits finger; cervical canal not obliterated.

7.55 p.m., another fit, chiefly right sided, beginning in right thumb and extending up arm to trunk; lasting three minutes. 10 p.m., patient very restless, but has had no more fits. Condition of uterus much the same. Morphia gr. $\frac{1}{6}$, and atropin gr. $\frac{1}{100}$, given subcutaneously.

March 4th, 7 a.m.—Very restless. Slept on and off throughout night; struggling when the catheter was passed, and also waking at frequent intervals without this cause. 8.45 a.m., cervical canal obliterated; os externum the size of a shilling. 9 a.m., morphia gr. $\frac{1}{6}$, atropin gr. $\frac{1}{100}$, given subcutaneously. 10 a.m., fœtus, of about five months' gestation, expelled. Chloroform given during removal of placenta and douche. 10 p.m., patient has slept all day except when touched. In latter part of day has taken plenty of milk. To-night is more rational and less violent; knew her mother.

15th.—Convalescence has been uninterrupted since last note. No more fits. Now gets up, and feels quite well.

Temperature.—On admission the temperature was 101°. At 5 p.m., the patient having had three fits, it had risen to 102·4°; then it began to fall, and continued to do so, although about 8 p.m. the patient had a fit, till 10 p.m., when temperature was 100°. At the time of the last fit, 8 p.m., the temperature was 101°, and an hour afterwards 101·4°. Between midnight and 2 a.m. the temperature rose to 102·3°, without further fits or any marked coincident change in the patient's condition. After 2 a.m. it rapidly fell, reaching normal by 8 a.m. After this, throughout the patient's stay in hospital, it never exceeded 100°.

Urine. Quantity.—During the first forty-eight hours the catheter was passed every two hours, and the urine measured. But little if any was passed into the bed. The amounts recorded represent the actual excretion as accurately as is possible in the case of a female patient. The chart shows a great diminution in the quantity of urine during the period of recurrence of the fits, a slight increase in quantity during the period from the cessation of the fits until delivery, and a considerable and rapid rise in the quantity of urine after delivery. From 4 to 9 p.m., that is, from admission till the cessation of the fits, the average amount of urine was about half an ounce per hour. From 9 p.m. till 10 a.m., the time of delivery, it averaged not quite three quarters of an ounce per hour. During the twenty-three hours following delivery it averaged about 2 oz. per hour. During the first forty-eight hours the measurement and examination of the urine were carried out under the immediate supervision of the Resident Accoucheur, Dr. H. G. Lys; and I believe that the figures given are as accurate as they could be made. After this time, other duties prevented his giving such close attention to this case; and although instructions were given that all the urine should be saved, the small amount collected makes it seem doubtful whether or not this was faithfully done. But the smallness of the amount was noticed at the time, and every care taken to impress upon the patient and nurses the importance of saving the whole of the urine. Some was of course lost when the bowels acted, and the number of motions is shown on the chart. I believe that the facts are recorded as accurately as they could be in a female patient. The quantity of urine which was collected, and which is shown in the chart, is considerably below the average of health.

Specific gravity.—Unfortunately I have no record of the specific gravity before delivery. Its variations afterwards do not permit any inference to be drawn from them.

Albumen.—On admission, the urine contained so much

albumen that on boiling it became solid. That drawn off at 9 p.m. (the last fit having occurred an hour before) only contained half its bulk of albumen. At 1 a.m. the quantity of albumen had sunk to one fourth. The urine continued to contain about this quantity till the specimen withdrawn five hours after delivery, which only contained one sixth. Nineteen hours after delivery there was only one twelfth of albumen in the urine, and the next day only a trace. A small quantity, about one fifteenth, was still present when the patient left the hospital. The albuminous precipitate, which on admission rendered the urine solid when boiled, was largely composed of paraglobulin. This, when separately precipitated, amounted to about half the bulk of the urine. When next examined, five hours after the last fit, the albuminous precipitate having then sunk to a quarter, there was only a trace of paraglobulin present. The urine was afterwards frequently examined for paraglobulin, but either none, or only a trace, was present.

Urea.—This was estimated by Russell and West's hypobromate process. The results (stated on the chart) show during the period of the fits a diminution both in the total urea excreted, and also in the percentage of urea contained in the urine. From admission till 9 p.m., that is during the period of the fits, the percentage of urea was ·84, and the average amount of urea excreted per hour was 1·62 grains. This rate, if continued for twenty-four hours, would give about 39 grains as the daily excretion. From the cessation of the fits till delivery the average percentage was 1·24 grains, and the average hourly excretion 4·42 grains, a rate which would give about 106 grains as the daily excretion.

It will be seen from the chart that there were great differences in the percentages of urea from hour to hour. I am unable to offer any explanation of these variations. They so struck Dr. Lys, that he frequently twice estimated the urea in the same specimen, that he might avoid accidental error. Dr. Hingston Fox has published some obser-

vations which go to show that in health the amount of urea excreted per hour is a tolerably constant quantity, both during night and day, while sleeping and waking, whether the urine be copious or scanty. If this be so, the fluctuations in this case would seem a feature due to the morbid condition of the kidneys.

Deposit.—The urine withdrawn on admission gave on cooling a deposit of lithates. This was present in most of the specimens examined until after delivery, when uric acid crystals were found as well. After delivery, casts were sought for with care, but not found. The urine before delivery was so scanty, and so much of it was used up in estimating the urea, that little was left for microscopical purposes.

Sugar.—On March 9th, 10th, and 11th the urine contained a trace of sugar. This was probably galactosuria. There was no sugar present at any other time.

This case does not support the view that the rise of temperature is an effect of the fits, for after three fits had occurred in rapid succession the temperature began to fall, and continued to do so in spite of the occurrence of another fit. The quantity of urine during the fits was diminished, but only a partial re-establishment of the excretion accompanied the cessation of fits; more complete restoration followed delivery. In this respect, that only a partial restoration of renal function apparently suffices to stop the tendency to fits, the case is like the two preceding ones.

I have tried to trace the subsequent history of this patient, but have failed to do so.

CASE 4.—*Tenth pregnancy; symptoms a week before fits at seven months' pregnancy; three days' treatment by milk diet in hospital before fits; retinitis; four fits only; morphia given after second fit; death by coma five hours after last fit; subnormal temperature; fits preceded and accompanied by diuresis; albuminuria diminished by*

rest and milk diet; fits accompanied and followed by increase of albuminuria and hæmaturia; steady diminution in urea-percentage preceding fits and continuing till death; absolute quantity of urea-excretion diminished, but no greater diminution preceding or accompanying fits. (Reported by Dr. H. G. Lys, Resident Accoucheur, and Mr. W. C. Aylward, Clinical Clerk.)

L. M—, aged 37, admitted into the London Hospital March 21st, 1889.

Family history.—Father died from "bronchitis," aged fifty-six; mother from "bronchitis and dropsy," aged forty-four; one brother was found dead in bed, aged thirty-two, cause of death said to be "asthma and bronchitis;" one sister died, aged twenty-seven, of "consumption." Two of patient's children died from "convulsions," one from "bronchitis," and one from "consumption."

Personal history.—Until this illness patient said that she had had good health. She had had smallpox when aged three months, and scarlet fever when aged nine. She began to menstruate at fourteen, and was always regular, except during pregnancies. She was married at twenty-one, and had had eight children and one miscarriage. All the children were born at term, living and healthy. The labours were easy. In 1881, about two or three months after the birth of the sixth child, she had a "tumour" in the left side. She came to the hospital, was admitted, and while in hospital the tumour "dispersed."

Patient considers herself seven months pregnant. She complains of slight cough and shortness of breath; but chiefly of dimness of sight. This came on four days ago, and has been getting worse since. It seemed at first as if there were a film over her eyes, and now everything looks hazy.

The patient on admission was somewhat anæmic. The enlarged uterus reached between three and four inches above the umbilicus. The fœtal heart was audible. There was slight œdema of legs and feet, but none above the

knee ; none of face ; no ascites. No abnormal signs over heart or lungs.

Ophthalmoscopic examination.—Right eye : inner part of disc swollen and margin lost, outer part white and not apparently swollen ; downwards and outwards from the disc an irregular white patch ; signs of other such patches commencing, and small hæmorrhages in outer part of field. Left eye : disc similar in appearance to right, commencing white patches in outer part of field, and much larger patches of hæmorrhage than in right eye.

Temperature was normal, and urine contained one quarter of its bulk in albumen.

The patient was put upon milk diet, kept in bed, given Ferri Amm. Cit. gr. v, three times a day, and instructions were given that all the urine passed should be saved for measurement and examination.

March 24th.—Patient complained last night of pain in chest, and did not sleep during the night. At 5 a.m. she had a fit ; at 7 a.m. another fit. Between the two fits and after the second fit she completely regained consciousness. Half a grain of morphia was given after the second fit. This was followed by sleep, which gradually deepened into coma. The patient had a third fit at 9 a.m., and a fourth at 10 a.m.—a very long one, attended with extreme lividity. The breathing after this gradually became heavier and slower, the pulse smaller and weaker, and the patient died at 3 p.m.

No autopsy was permitted.

Temperature.—The heat of the body never exceeded normal. It was normal on admission, and on the morning and evening of the 23rd (the day after the fits). It was taken at 7 a.m. and again at 9 a.m. on the 24th, but the thermometer did not rise above 96°.

Urine ; quantity.—It has been mentioned that instructions were given that all the urine passed by the patient should be saved. The bowels acted twice on the 23rd (the day before the fits), so that on this day some urine was lost. From the time of admission till 8 a.m. on the 22nd

40 oz. of urine were passed. From 8 a.m. on the 22nd to 8 a.m. on the 23rd, only 24 oz. From 8 a.m. to 8 p.m. on the 23rd, 21 oz. From 8 p.m. on the 23rd to 8 a.m. on the 24th—that is, during the twelve hours, in the latter three of which the fits came on, 38 oz. The fits were therefore not preceded by any diminution in the quantity of urine, but rather by an augmentation. On the 24th the catheter was again passed at 9 and 11 a.m. and at 2 p.m., and in all 16½ oz. were withdrawn. This rate of excretion, continued for twenty-four hours, would give 66 oz. of urine. The fits in this case were therefore preceded and accompanied rather by diuresis than by diminution in the amount of urine.

Specific gravity.—This ranged from 1010 to 1015. It was 1010 on the day of admission; on March 23rd 1012. That of the 38 oz. passed in the twelve hours ending March 24th 8 a.m. was 1010. The specific gravity of the urine drawn off at 9 a.m. was 1015; that of the urine at 2 p.m. 1014. The disease does not therefore appear to have been attended with any diminution in the excretion of urinary solids.

Albumen.—When patient was admitted the urine contained one quarter of its bulk of albumen. Its quantity was estimated roughly by the eye after precipitation and standing. The day after admission the quantity had sunk to one tenth, and on the 23rd, the day before the fits, to one twelfth. The urine of the twelve hours ending 8 a.m., March 24th (fits in the last three hours of these twelve), contained one third of its bulk of albumen; and that drawn off at 9 a.m. and 11 a.m. was almost solid with albumen. That withdrawn at 2 p.m. contained five sixths of its bulk of albumen. The urine passed on the 23rd (before the fits) was examined for paraglobulin, and this was found present, but unfortunately no note has been preserved as to its quantity, and the urine was not again tested for it.

In this case it will be seen that diminution in the amount of albumen followed treatment by rest and milk diet, and that the fits were accompanied and followed by great in-

crease in the amount of albumen. There is no evidence whether or not the fits were immediately preceded by an increase in the amount of albumen; but no such increase long preceded them.

Urea.—The percentage of urea was estimated by the hypobromate process of Russell and West. The percentage was throughout below the average, and below what would have been expected from the specific gravity of the urine. On admission the percentage was ·7. On the day following it has risen to ·9. Next day during the twelve hours before that in which the fits occurred, it fell to ·8. Then it went on steadily diminishing until death. The urine passed during the twelve hours, in the latter three of which the fits occurred, contained ·6 per cent. of urea. That drawn off at 9 a.m. contained the same. The specimen obtained at 11 a.m. only showed ·5 per cent.; and in the urine withdrawn at 2 p.m. (an hour before death) there was only ·4 per cent. But although the percentage of urea thus steadily diminished, the total excretion of urea, although much below the average of health, did not, during the period of the fits, fall below the average of the preceding days. In the twenty-four hours following admission 134 grains were excreted; in the second twenty-four hours 103 grains; in the third twenty-four hours (in the last three hours of which the fits occurred) 213 grains; and in the six hours ending an hour before death 39 grains, a rate of which, if kept up, would give an amount for the twenty-four hours of 156 grains.

Deposit.—In the first few days the urine was clear, giving no deposit. The urine passed between 8 a.m. and 8 p.m. on March 23rd was reddish in colour, and gave a deposit of blood. Between 8 p.m. on March 23rd and 8 a.m. on March 24th, it was port-wine coloured, with a deposit of blood and casts. The subsequent specimens were black, like porter, and gave a deposit of blood discs, granular and epithelial casts. In the last specimen, obtained an hour before death, there were also urates.

The *reaction* was acid throughout.

No *sugar* was present.

This case is remarkable, in that the temperature was never above normal, and sank to subnormal before death. Those who regard puerperal convulsions as being something different to ordinary uræmic convulsions would perhaps regard this case as one of uræmia, not of true eclampsia. But there was no history pointing to chronic kidney disease, nor did the symptoms resemble those of ordinary acute nephritis. The fits were neither preceded nor accompanied by diminution in the quantity of urine, nor by any greater deficiency in the excretion of urea than had been present at a time when the patient did not present grave symptoms. The only explanation that I can suggest is that a persistent deficiency, even though not great, in the excreting power of the kidneys, may have led to cumulative retention of urea in the blood and tissues which at length reached the point of exciting convulsions. I refrain from offering any argument on the question as to whether it be urea, the non-excretion of which is really the important factor of so-called uræmic seizures. These cases do not seem to me to afford a basis for the discussion of that question. Another important point also arises out of this case, viz. whether the morphia contributed to the fatal termination. The patient's condition was worse after the morphia than before it. The evidence (of which the other cases related in this paper form part) that in many cases of puerperal eclampsia the use of morphia is followed by a favourable termination is now so abundant that I do not infer, from the clinical history of this case, that the morphia was injurious. It may be that there is a class of cases, to which this one belongs, in which morphia is harmful. Further research is needed to show this, and, if there be such a class, to define its characters.

CASE 5.—*Primigravida; symptoms about thirty-six hours before fits, at eight months' pregnancy; intra-uterine death of fœtus; twenty-four fits in all, extending over*

sixty hours, and ceasing before delivery; delirium for forty-eight hours after fits; slight pyrexia, subsiding before cessation of fits; during time of earlier fits urine solid with albumen and diminished in quantity, but percentage of urea not diminished; increase in quantity of urine and percentage of urea, and diminution of albuminuria before cessation of fits. (Reported by Dr. F. Howard Taylor, Resident Accoucheur, and Mr. W. Duigan, Clinical Clerk.)

S. S—, aged 34, admitted into the London Hospital, May 21st, 1889.

Family history.—Father died suddenly of heart disease, aged 49; mother, of asthma, aged 44. No history of insanity in any relative.

Previous history.—Patient first menstruated at sixteen, and was always regular, without pain, until her marriage. She had always enjoyed good health, never having had a day's illness until the present. She was married eight months ago, and believed herself to be eight months pregnant. During the last month she had frequently complained of faintness towards evening, feeling as if unable to do her work, but had never actually fainted, or left any of her work undone. Excepting for this, she was quite well until May 19th. On that morning her husband said she complained of a feeling of great weight and pain under both breasts, extending to the lower abdomen. This lasted all day, and she had no appetite. Beyond this she had no complaint. In the early part of the night of May 19/20 she slept fairly well. Before daylight she began to suffer from nausea. She vomited several times during the morning, and throughout the day at intervals of from one to two hours; the vomited matter was yellow and of a so-called "bilious" nature. In the afternoon of May 20th she began to complain of frontal headache, and these symptoms continued till the evening. At 7 p.m., while in bed, she complained of feeling giddy, as if the room were going round, and then she had a fit, epileptiform in the

characters described, which was followed by a short period of stupor. After this she recovered consciousness only for a minute or two, and then had a second fit, which was followed by more prolonged stupor. An hour after she had a third fit. Then she was conscious for two or three hours, but before midnight she had a fourth fit. After midnight fits recurred with increasing frequency. From 1 a.m. to 2 p.m. on the 21st she had fourteen fits. In the intervals she never properly recovered consciousness, and she frequently vomited. She sometimes passed water during the fits. About 2.30 p.m. patient was brought to the hospital and admitted.

At 3.20 p.m. the following note was made by Dr. Herman :—Patient is reported to have had a fit at 2.30 p.m., was admitted at 2.40 p.m. No fit since. Patient is restless. Has not spoken since admission. Pupils act to light. Conjunctivæ sensitive, although sensitiveness seems diminished. Features swollen, ecchymoses round eyes, black crusts about lips; hands very livid. No œdema anywhere. Uterus reaches nearly halfway between umbilicus and ensiform cartilage; no appreciable dilatation of cervix. Cardiac dulness extends to a finger's breadth outside nipple line. No murmur at apex. Much rattling from mucus in air-passages.

3.50 p.m. patient had a fit, followed by coma, with stertorous breathing. The stertor lasted about ten minutes. After this the patient lay for the most part asleep, intervals of restlessness occasionally intervening. At 9.35 p.m. she was given a draught containing Chloral Hyd. gr. xxv, and Pot. Bromid. ʒss. After midnight she was able to take milk.

May 22nd.—7.30 a.m. she had a fit like the former ones, epileptiform. After this she remained without any sign of consciousness till 2.30 p.m. Then she spoke to the nurse, and after this remained conscious till 10.10 p.m., when she had another fit, followed by a short period of stupor.

23rd.—3.45 a.m. and at 6.40 a.m. patient had fits.

These were left sided, and were not followed by such deep coma as was present after the earlier fits. At 9.20 a.m. the patient began to tremble all over, but said she did not feel cold. At 9.50 the trembling ceased. The temperature at 9.45 was 100°; at 10.45, 101·6°. It then fell, reaching normal by 4.45. At 11.45 a.m. patient complained of pain in the lower abdomen, and said she felt something coming away from her. The nurse looked, and found that the child had been expelled into the bed. The fœtus was macerated, and apparently about seven months' development. The resident accoucheur was then called, and expressed the placenta with some difficulty about half an hour after the birth of the child. There was but little hæmorrhage. Half a grain of ergotin was injected subcutaneously after the delivery of the placenta. At 2.50 p.m. patient began to vomit, and this continued incessantly till 8.15. The vomited matter was yellow, acid, bilious-looking. She complained occasionally of pain in the head and abdomen. The nurse also reported that she "talked strangely;" fancied that she could see people and things.

24th.—Patient slept fairly well during the early part of last night, except that she was a little restless at times. She woke at 3.15 a.m., and soon after waking complained of headache. During the day she was restless, and vomited once or twice. She took nourishment fairly well. About 8.30 p.m. she suddenly became violent, clutching at the nurse, and saying she was being poisoned, killed, &c. She was given Morphia gr. $\frac{1}{2}$, and Atropin gr. $\frac{1}{100}$.

25th.—After the administration of the morphia and atropin the patient slept till 4 a.m., being wakened about every two hours for the administration of brandy and milk. About 4 a.m. she became rather excited and talked at random, but showed no violence. Then she slept and perspired very profusely. About 5.30 a.m. she was wakened, and spoke quietly and rationally, complaining of giddiness. 10 a.m. patient started up in bed,

saying there was a mouse running over it; asked for her clothes, and talked continually about mice, saying they were running about the room. At 11 a.m. a dose of atropin, $\frac{1}{100}$, was given; but as this failed to quiet her, at 11.25 a.m. Morphia gr. $\frac{1}{2}$ was given. At 11.50 a.m. the patient went to sleep, and slept, excepting when roused for food or medicine, till 4 p.m.

26th.—During this day she was quieter, sleeping a good deal, and sensible when awake. She vomited four or five times, but took a fair amount of nourishment.

27th.—Patient slept last night from 9.30 p.m. to 6 a.m. Talked a good deal in her sleep. No more vomiting. Is quieter and rational.

28th.—Patient had a good night, only waking to take food. Is this morning quiet and sensible, and answers questions rationally.

31st.—Patient sleeps and takes food well. Lochial discharge natural.

June 7th.—Discharged.

Temperature.—The temperature was taken every hour until twenty-four hours after the last fit. Then it was taken every four hours for a week. From that time till patient's discharge it was taken night and morning. On admission (patient having had eighteen fits during the previous nineteen hours) the temperature was 100°. It was 99·8° an hour afterwards, when the patient had the first fit after admission. During the next fourteen hours—that is, up to the time of the next fit—it varied between 99·2° and 100·6°, having fallen from the latter point to 100·2° at the time of the fit. Then it gradually fell, and at the time of the next fit (viz. 10.10 on the evening of the day following admission) was 97·8°. During the next nine hours it remained subnormal, and during this time the patient had two more fits. Then came the attack of trembling already mentioned in the notes, in the two hours following which the temperature rose to 101·6°. In the next two hours it fell to 101°, and three hours after that had become normal. I cannot offer any explanation

of this brief rise of temperature, unless the mental perturbation caused by the onset of labour pains be accepted as sufficient. After the temperature had subsided vomiting began. During the next day the temperature was normal until 8 in the evening, when it rose, reaching 101·4° at midnight, and 102·4° at 4 a.m. Then it again fell, being normal at midday. This elevation of temperature was accompanied by mental excitement, and as the temperature continued to rise during sleep produced by morphia and atropin, I am inclined to think the mental excitement depended on the febrile state, rather than that the temperature depended on the mental excitement.* After this no noteworthy elevation of temperature occurred.

Urine.—Instructions were given that the urine should be drawn off hourly. Notwithstanding that this was done, the urine was so frequently passed in bed that it was impossible to collect all or nearly all that was passed. I think that the hourly use of the catheter was too frequent, and I am inclined to attribute to it the irritability of bladder which defeated the object of the catheterisation. I give the results obtained, imperfect as they are. Although they do not give, as it were, a complete picture, yet they furnish glimpses which are accurate as far as they go.

Quantity.—The chart shows the amounts of urine drawn off when the catheter was not anticipated by influences causing the bladder to empty itself. The catheter was not passed till an hour had elapsed from the last emptying of the bladder, so that each amount withdrawn shows the hourly excretion of urine at that time.

The dots on the chart show the amounts actually drawn off. The crosses indicate that the urine was passed in bed, or with the stools, or in a fit.

During the first seven hours the attempt at collecting all the urine was successful. The chart shows a rate of

* Hansen ('Zeitsch. für Geb. und Gyn.,' Band xv) has brought forward evidence as to the connection between pyrexia in the puerperal state and mental disturbance.

urine excretion varying from zero to 1½ oz. per hour, an average of about 326 minims per hour, about one third the average of health. We may safely conclude that in this case, at the height of the disease, the quantity of urine excreted was much diminished. Then, unfortunately, comes a long period in which most of the urine was lost; but the results of occasional catheterism show that the amount of urine was still scanty, ½ oz., 2 dr., and on two occasions none at all, being the quantities of urine found in the bladder an hour after urine had been passed. About twenty-four hours after delivery the chart shows increasing amounts of urine to have been poured into the bladder, 1½ oz., 2 oz., 3 oz., 4 oz., and 4½ oz. being withdrawn by the catheter. This more abundant excretion of urine took place about the same time as the later fits, which were followed by briefer coma than the earlier ones. The largest quantity of urine found to have been excreted in an hour, viz. 4½ oz., immediately preceded the last fit. After this the returns are too incomplete to be worth record. But the fragmentary observations which I have recorded show that during the stress of the disease the quantity of urine was much diminished, and re-establishment, and it seems indeed increase, in the amount of urine excreted, preceded the cessation of the fits.

Specific gravity.—The quantities of urine withdrawn at each catheterisation were too small for the specific gravity to be easily ascertained. I therefore have only records of the specific gravity of different specimens of each day mixed together. On the day of admission the specific gravity was 1034. I have unfortunately no record of the specific gravity of the next day; but on the third day (the last fit having been at 7 a.m. on that day) the specific gravity had sunk to 1020. No important variation is observable after. The specific gravities were as follows: May 24th (fourth day), 1020; May 25th, 1024; May 26th, 1025; May 27th, 1025; May 30th, 1024.

Albumen.—On admission the urine was nearly solid when the albumen was precipitated, and each specimen

withdrawn contained a little blood. On the following day the amount of albumen had sunk to about half; a little blood was still present. On the third day (day of cessation of fits and delivery) the quantity of albumen was about the same, but there was no longer blood in the urine, which from this time onwards gave a deposit of urates. On the fourth day the quantity of albumen had sunk to about one fourth or one fifth; and a similar amount was present during the next two days. On May 27th the albuminuria had sunk to one tenth. At the time of discharge there was a scarcely perceptible trace.

Urea.—The percentage of urea was ascertained by the Russell-West hypobromate process. I am indebted to Mr. Duigan for his trouble in doing this. The collection of the urine being so imperfect, I refrain from attempting any estimate of the total quantity of urea eliminated. The percentages of the different specimens are shown on the chart. It will be seen that the percentage of urea was not at all diminished. On the day of admission it corresponded to what would have been expected from the specific gravity of the urine. On the two following days it was slightly increased, and was in excess of what would have been inferred from the specific gravity. Then it sank, and later on, when the albumen had diminished to a trace, the percentage of urea again corresponded to the specific gravity of the urine.

Deposit.—On May 30th some granular casts were deposited. At no other time were casts found in the urine; but as the quantities examined were very small, I do not from this infer that casts were not present.

October 21st, 1889.—Patient has not menstruated since the middle of July. Thinks herself pregnant. Uterus presents all the signs of pregnancy at the period stated by patient. Patient complains of headache, coming on every other day, and lasting all day, but thinks herself otherwise well. Is not anæmic. No œdema.

Urine 1010, acid, clear, no albumen.

In this case the recurrence of fits was protracted over

a longer period than usual. The case also shows that rise of temperature is at least not an invariable sequel of the fits. It also suggests that the coma following the fit is not an effect of the convulsion, but that convulsion and coma are alike effects of the morbid condition causing the former: for in this case fits continued to recur, although the temperature was falling and the amount of urine increasing; but the later fits differed from the earlier ones in not being followed by prolonged coma.

General Remarks.

These five cases appear to me to exhibit facts bearing upon many points of interest in the clinical history of eclampsia. But I shall only dwell upon one point, which appears to me to be the main one which they demonstrate. They go to show that puerperal eclampsia is not a disease having a uniform typical clinical history, any more than it has a uniform morbid anatomy. Schauta,* who has given the fullest accounts of the morbid anatomy that I am acquainted with, found the following different renal changes present:—acute nephritis, chronic Bright's disease, acute nephritis upon chronic lardaceous disease, hydronephrosis, dilatation of ureters and renal calices, and in other cases no renal change appreciable by the unaided senses. Now, when the post-mortem changes are so various one would expect differences in the clinical history also.

The researches of Bourneville, Galabin, Quincke, and others, show that many cases of eclampsia are accompanied by elevation of temperature, which in fatal cases steadily rises until death. Galabin† expresses the opinion, which I think has much in its favour, that the elevation of temperature is due to the fits. If this be correct, the elevation of temperature should be somewhat in propor-

* 'Arch. für Gyn.,' Band xviii, S. 277.

† 'Manual of Midwifery,' p. 289.

‡ 'Études cliniques et thermomètriques sur les maladies du système nerveux,' 2e fasc., Paris, 1873.

tion to the number of the fits, and the fits should be followed by rise of temperature. Bourneville‡ has drawn a distinction between puerperal eclampsia and ordinary uræmia, by contrasting the rising temperature of eclampsia with the falling one of uræmia. Hippolyte,* regarding pyrexia as an essential feature of the disease, quotes cases in which treatment by bleeding, chloroform, and chloral was followed by lowering of temperature, the treatment and the falling temperature being by him regarded as cause and effect, and the latter therefore a proof of the efficiency and value of such treatment.

From these five cases I can express no opinion as to what may be true in the majority; but these show that the generalizations quoted do not hold good of all cases. In the only one of these cases that was fatal the temperature was never above normal, and fell to subnormal before the termination. In Case 5 the fits were not followed by a rise in temperature, but by abatement of pyrexia, the body heat sinking to normal although fits continued. I may also point out that in Cases 1 and 5 the temperature rose slightly after chloral and chloroform had been used. But without a more exact knowledge than we at present have of the conditions upon which the temperature in this disease depends, we cannot safely conclude that alterations in the temperature are the effect of treatment.

It is stated in most text-books that in this disease there is a great diminution in the quantity of urine. I do not doubt that this statement is true of most cases. But in Case 3 of this series there was copious diuresis during the fits, still further increased after delivery; and in Case 4, the fatal one, an increase in the quantity of urine passed preceded the fits and accompanied them.

It is well known that albuminuria rapidly diminishes in these cases after delivery. In Cases 2 and 5 the albuminuria began to diminish after the cessation of the fits, and before delivery. It has been maintained that the albuminuria is due to the fits; and in its bearing on this theory

* 'De l'éclampsie puerpérale,' Paris, 1879, p. 329.

Case 2 is interesting, in which the fits were followed by an increase in the amount of albumen in the urine.

In all the cases the excretion of urea was diminished during the fits. There was in most a diminution both in the percentage of urea and in the quantity of urine. In Case 2, in which the quantity of urine was above the average, the percentage of urea was much diminished, so that the rate of urea-elimination was scarcely half that of health. In the case admitted for Bright's disease, in which convulsions supervened, and death followed, the excretion of urea was throughout below that of health. In all the patients who recovered, increase in the elimination of urea followed cessation of the fits and delivery.

I put aside controversy as to the part which urea in the blood or tissues plays in exciting convulsions. It is sufficient justification for troubling the Society with the details of these cases, that it is generally admitted that the amount of urea eliminated is the best guide we have to the functional activity of the kidney; and if this be so, the value of these records is the same, whether the fits be due to urea, or to products resulting from the decomposition of urea, or to waste products which ought to have been converted into urea.

Dr. PRIESTLEY said that the sincere thanks of the Society were due to Dr. Herman for the great care and zeal with which his observations on the varying conditions in eclampsia had been conducted. It was only by such carefully recorded facts that the true pathology of the obscure disease was likely to be elucidated, and it was obvious that much yet remained to be learned about it. It was difficult to discuss the paper in all its bearings, but one fact struck him particularly, viz. the absence of that high temperature, as indicated by the thermometer, which had been pointed out by writers on the Continent as usually present during the progress of puerperal convulsions. It was held almost as an article of faith in France and Germany that high pyrexia specially pertained to attacks of eclampsia, the temperature rising so high in some cases as 43° C., or about 109° F., and increasing from the beginning of a fatal attack to the end; while with convulsions, the result of general uræmia, the temperature fell progressively until death. Winckel claimed first to have

pointed out the remarkable rise in temperature during the paroxysms of eclampsia; and Charpentier, in controverting his claim, makes a severe attack upon him for advancing it. The last-named author states that Kien made the first serious researches with the thermometer in eclampsia, and after him Bourneville and Budin. Dr. Herman's paper was a sufficient proof that we were not yet in possession of all the pathological facts relating to the various forms of puerperal eclampsia, and he had certainly proved that the disease had not a uniform clinical history.

Dr. HORROCKS quite agreed that there was a varied clinical history, as well as a varied morbid anatomy, in cases of puerperal eclampsia. Primarily they were divided into two groups as essentially distinct as epilepsy and uræmic convulsions, namely, those in which there was no albumen in the urine, and those in which there was albumen, often in large quantities. He believed that the latter group at least, and perhaps the former, might be still further subdivided, according to differences in pathology. But not knowing yet how to distinguish these differences, he had hitherto treated the non-albuminuric cases as cases of epilepsy complicating pregnancy. In all these he had administered large doses of bromide of potassium per rectum; in one case as much as ninety grains were given this way in one dose, and the patient recovered. He had had another case with Dr. Marshall, of Bermondsey, but the patient died. Regarding the other cases in which albumen was found, the administration of morphia was perhaps dangerous, especially where the uræmic element prevailed. The researches regarding the temperature and the quantity of urea excreted were very valuable, and his own experience was that the temperature was raised as a rule, and in some cases he had found that it continued to rise for a few hours after death.

Dr. W. S. A. GRIFFITH remarked that there were two points in the clinical history of the nephritis of pregnancy (with or without puerperal eclampsia) about which information was much needed. The first had to do with the origin of the disease. In what proportion of cases had there been any evidence of pre-existing nephritis, complicating scarlatina or diphtheria, for instance? The other was the termination of the disease. How many cases died eventually from or with kidney disease? It was generally held, he thought, that the disease was temporary, and that in favourable cases recovery soon took place. In discussing the question Dr. Gee had stated to him that in his experience very many of these cases in later life developed symptoms of chronic kidney disease. Dr. Griffith would be glad if Dr. Herman could give him any information on these points.

The PRESIDENT said that he thought that the theory propounded by Bourneville that eclamptic attacks raised the tem-

perature, while uræmia lowered it, applied not only to separate cases, but to the different elements in the same case. If, therefore, the uræmic conditions, as evidenced by diminished secretion of urea, preponderated in proportion to the frequency of the convulsions, it might be expected that the elevation of temperature would be interfered with. He asked Dr. Herman if this principle would explain any of the anomalies observed in his cases. Again, in his experience, it was chiefly in untreated cases that very marked elevation of temperature occurred, and chloroform or bleeding especially counteracted it. In one case, untreated until the patient was moribund, he had found the temperature as high as 110°.

Dr. HERMAN, in reply, said that although he had quoted Bourneville's paper, he had not intended by doing so to imply any opinion as to the question of priority between him and Prof. Winckel. He agreed with Dr. Horrocks that cases of eclampsia without albuminuria were very different from cases with albuminuria, and he would add that cases in which there was a mere trace of albumen were quite different from those in which the urine was so loaded with albumen as to become nearly solid on boiling, as in the cases now related. The one feature which all these cases had in common was a diminution in the excretion of urea during the time in which the fits were occurring. These cases, so far as they went, did not support the view that the elevation of temperature was in proportion to the number of the fits, for Case 5, in which the fits were most numerous, had not the highest temperature.

ANNUAL MEETING.

FEBRUARY 5TH, 1890.

ALFRED L. GALABIN, M.D., President, in the Chair.

Present—41 Fellows and 1 Visitor.

The President declared the ballot open for one hour, and appointed Dr. Clapham and Dr. Dakin as scrutineers.

Chichester G. May, M.A., M.B.Cantab.; Charles Henry James, L.R.C.P.Lond.; and Thomas Edward Parsons, M.R.C.S., were admitted Fellows of the Society.

Edward H. Douty, M.A., M.B., B.C.Cantab. (Cambridge); J. Arthur Helme, M.D.Edin. (Manchester); and Thomas Richmond, L.R.C.P.Edin. (Glasgow), were declared admitted.

The following gentlemen were elected Fellows of the Society:—Christopher Martin, M.B., C.M.Edin. (Middlesbrough); Benjamin Wilfred Thomas, L.R.C.P.Lond. (Welwyn); and George Porter Wornum, M.R.C.S.

The following gentlemen were proposed for election:—William John Gow, M.D.Lond.; and Aylmer Orr, M.A., M.B.Oxon.

DOUBLE PYOSALPINX.

By Charles H. Carter, M.D.

The specimen was removed by abdominal section from a patient aged 24, married two and a half years, but never pregnant. She had suffered from dyspareunia and pain for the last twelve months, and these symptoms had increased during the last six months, so that she was unable to walk any distance, or quickly. She had never had any vaginal discharge, or pain or trouble on micturition. The catamenia began at fourteen; pre-menstrual pain usually lasted three to four days; worse since marriage. Period used to last three to four days, during the last two years it lasted five to six, and the loss was greater.

The husband says he had gleet seven years before he was married, but was well at the time of marriage.

On vaginal examination the uterus was found to be pushed downwards and forwards, and the two tumours were felt one on each side behind the uterus, and moveable to some extent. At the operation both were adherent to the pelvic floor, and were shelled out with difficulty. To the left tumour there was a wide omental attachment. The right tube was five inches long, the ovary closely attached to it, and on cutting into it about 2 oz. of healthy pus escaped. The left tube was about four inches long, and each was about two inches in circumference. The patient made an uninterrupted recovery.

CYSTIC DISEASE OF THE CHORION.

By A. E. Aust Lawrence, M.D.

Dr. Aust Lawrence exhibited a specimen of cystic disease of the chorion. The patient was only two months

pregnant, yet her uterus was of the size usually attained at the eighth month. The enlargement was due to concealed hæmorrhage and the diseased chorion. The uterus was cleared out and the patient did well.

Dr. Aust Lawrence laid stress on two points in the diagnosis. Firstly, the enlarged uterus is always out of proportion to the date of pregnancy; and secondly, the form of the uterine tumour is always irregular, not at all like a pregnant uterus of a corresponding size. As for treatment, the uterus should be cleared out as soon as the diseased condition is recognised.

CYSTIC DISEASE (HYDATIFORM DEGENERATION) OF THE CHORION.

By John Phillips, M.D.

Dr. John Phillips exhibited a portion of this morbid product of conception. The patient was aged 42, and the mother of several children. She supposed herself four months pregnant, and was certain of the occurrence of fœtal movements. She had been flooding incessantly for three weeks. Her condition when first seen was alarming,—œdema of the feet, legs, and hands, the pulse 140, respirations 42 per minute, and the usual accompanying signs of profuse hæmorrhage. The uterus extended about two inches above the umbilicus, and no fœtal heart-sounds were audible. The os uteri was dilated to the size of a sixpence only. Ether was given, and after preliminary dilatation with Barnes' bags the whole mass was scraped out of the uterine cavity. Easy recovery followed. No albumen could be detected, and the œdema of the legs and hands was gradually disappearing. No trace of a fœtus was discovered. The interest of the case lay in the question of the diagnosis, which it was almost impos-

sible to make from placenta prævia until the introduction of the hand into the uterus.

UTERUS AND APPENDAGES OF AN INFANT; HÆMORRHAGE FROM THE UTERINE MUCOUS MEMBRANE.

By C. H. James.

Mr. C. H. James showed the uterus and appendages of a child aged 5 days, who, on the day previous to death, had a sanguineous discharge from the vulva. The child was weakly and premature (eight months), and took nourishment very badly. There was no swelling of the breasts and no jaundice. The labour had been natural and easy. On laying open the uterus at the post-mortem examination, the mucous membrane of the body was red, swollen, and covered with blood, but the cervical mucous membrane appeared healthy. No disease was detected in any organ except the liver, which was pale and yellowish in the centre. A discharge of blood from the genital organs in new-born children has frequently been noticed, but it is rare to get an opportunity of demonstrating its source from the uterine mucous membrane.

Dr. Cullingworth said that some years ago he took great trouble to collect all the cases he could find recorded of hæmorrhage from the genital organs of the newly-born female child. He had embodied the results in a paper published in the 'Liverpool and Manchester Medical and Surgical Reports.' This case, therefore, was of special interest to him, the more so as it afforded a rare opportunity of ascertaining by inspection the source of the blood. So far as he knew, the only other instance in which there had been a similar opportunity was one recorded by Billard. In that case also the source of the bleeding was the inner surface of the body of the uterus. The reason of the rarity of post-mortem examinations was that in the great

majority of cases this affection was quite insignificant. He was glad a microscopic examination was to be made.

Dr. HERBERT SPENCER had only seen one case of hæmorrhage from the living infant's vagina, and the case recovered. He had, however, several times met with congestion of the uterine mucous membrane in still-born children, as in this specimen. He had also seen hæmorrhage into the mucous membrane of the body and into the subperitoneal tissue around the uterus.

UTERUS SHOWING PLACENTA PRÆVIA.

By A. H. ROBINSON, M.D.

(Communicated by C. J. CULLINGWORTH, M.D.)

DR. ROBINSON exhibited a uterus with placenta prævia, removed from the body of a girl aged 17, who had been ailing for several days but concealed her condition from her friends. On the day of her death she was found, early in the morning, covered with blood, but denied all knowledge of its origin, and refused to be examined by a medical man called in by her mistress. She was then removed to the house of a relative, and later to a general hospital, where she remained some time, but again refused to be examined. When first seen in the evening she was perfectly blanched, there was no pulse at either wrist, the heart-sounds were feeble and faltering, and the girl was quite unconscious. A vaginal examination was made, and the os uteri found to be dilated to a diameter of an inch and a half. Immediately within the os the finger encountered a spongy mass, through which the fœtal head could be detected. No hæmorrhage was now present, but the girl's clothing was saturated with blood. There was no escape of amniotic fluid, the membranes being intact, and uterine contraction being in abeyance. It was proposed to perform transfusion, but before that could be effected the heart ceased to beat.

A necropsy was made two days later, when, beyond the most marked anæmia, all the organs appeared perfectly normal. There was a small amount of very soft black clot in either ventricle of the heart. Openings were made in the iliac veins, and they were found empty. On opening the abdomen the pregnant uterus was seen to extend upwards to within two inches of the ensiform cartilage. A vertical incision was made in the anterior wall, and a fully developed fœtus extracted. The uterus being then removed from the body, it was found that the placental attachment occupied the whole of the anterior wall, extending from within an inch of the fundus above to the os below. A free portion of its circumference, some two inches in extent, was found projecting through the dilated os. On this free edge of the placenta existed a rent an inch and a half in length, the membranes being separated for some distance around. Through this rent the reticulated substance of the placenta could be seen, and from this situation prolonged hæmorrhage had doubtless taken place. The pelvis was well formed, and no impediment to natural labour existed. A placenta succenturiata was present.

The specimen was referred to a committee consisting of Drs. Playfair, Cullingworth, and Champneys.

URETHRAL DIVERTICULA.

By Amand Routh, M.D.

(Received November 6th, 1889.)

(*Abstract.*)

Three cases of urethral diverticula are related, and references to others made. The literature on the subject, though dating from 1847, is scanty and scattered.

The *symptoms* are progressive discomfort and frequency of micturition, dyspareunia, and the formation of a swelling which appears at the vaginal orifice. Pressure upon the swelling causes thin, offensive, irritating pus to pass into and out of the urethra. Cases are recorded showing that if these diverticula are left untreated, retrograde changes occur along the urinary tract.

The physical signs are unequivocal, differing on the one hand from dislocation of the urethra, and on the other hand from simple dilatation of the middle third of the inferior wall (urethrocele).

The diverticulum is essentially a urinary pouch or cyst communicating with a urethra of normal calibre, usually in its middle third, by an orifice relatively narrow.

The ætiology seems to be—1. Closure of the ducts of pre-existing urethral glands, retention-cysts resulting. Suppuration and ulceration into the urethra by a small, often valvular hole follows, and the inflammation is kept up by urine trickling into the sac at each act of micturition. 2. Blood-cysts which have passed through similar changes. 3. The formation of pseudo-cysts by injury to the urethral floor during labour or instrumentation.

Pregnancy, with its increased local activity, seems usually to

induce the formation of these cysts, and parturition appears to be often the immediate cause of the rupture.

The treatment is mainly surgical. 1st. *Where urethritis or cystitis exists*, the cyst-wall should be dissected out, and cut off close to the urethra, and the vaginal wound left open for drainage. 2nd. *Where the urinary passages are healthy* the cyst should be dissected out, the opening into the urethra enlarged to allow drainage, and the vaginal wound at once closed. In either case the urine should be drawn off till union is assured.

THREE cases have recently come under observation at the Samaritan Free Hospital, and as they appear to be not infrequent, and yet have been rarely described, I have ventured to bring them before this Society, hoping to have light thrown upon their ætiology and proper treatment.

These diverticula occupy the urethro-vaginal septum, and communicate with a urethra of normal calibre and position by a small opening in its floor.

Roughly speaking, the *symptoms* are progressive discomfort and frequency of micturition, the appearance and growth of a tender lump projecting at the vaginal orifice, passage of thin irritating pus, either at the end of micturition or on pressure, and sooner or later cystitis, &c.

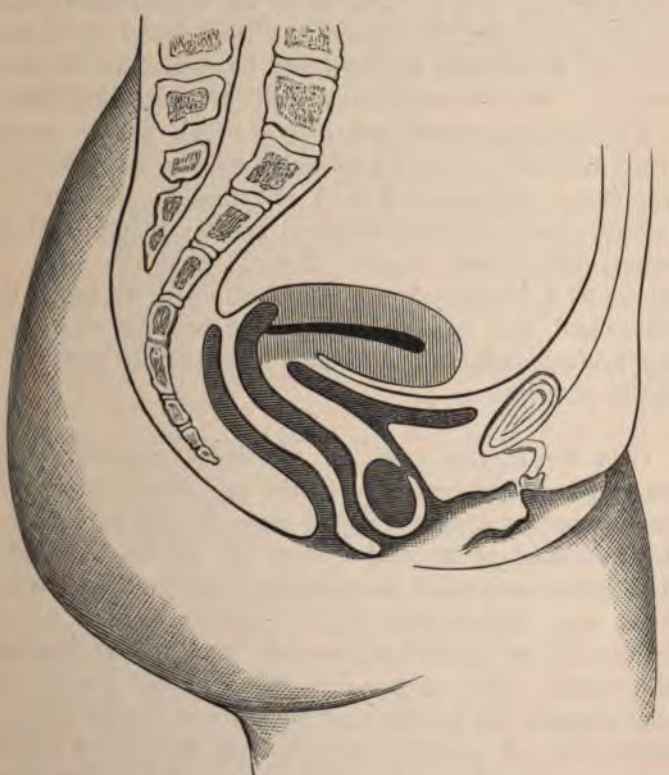
The *physical signs* are as follows:—*Per vaginam* a rounded, tender, tense swelling is found in the urethro-vaginal septum, opposite the middle third of the urethra. Its smoothness and elastic hardness are characteristic, the rugæ of the mucous membrane over it being obliterated. In some cases the mucous membrane moves freely over the underlying sac, in others it is adherent by inflammation. A sound passed along the *anterior* wall of the urethra goes directly into the bladder, proving that the case is not one of urethral dislocation.

As proving further that these cases are not simple dilatations of the middle third of the inferior wall of the urethra (simple urethrocele), it is found that a large-sized sound will not enter the pouch, but will pass on into the bladder, whereas a small sound or probe will find its way through

the narrow opening (which is often valvular), if it be passed along the posterior wall of the urethra. The exact size of the opening (usually from 4 to 8 English catheter) is ascertained by a graduated bulbous sound.

With a bougie lying in the urethra the sac is felt to be quite distinct, and even when emptied by pressure it remains a distinct thick-walled cyst. When full, these cysts vary in size from that of a pea to that of a hen's egg.

After being emptied, it only partially refills at the next act of micturition, taking six or eight hours to become tense by exudation from its own lining membrane.



The first of the three cases which have come under my notice was admitted into the Samaritan Free Hospital by

Mr. Malcolm, under the care of Dr. Percy Boulton, in February last, and he has kindly placed his notes at my disposal.

The patient was a married multipara, aged 33, whose chief pelvic trouble was dysuria.

Examination revealed granular endocervicitis, and a urethral diverticulum the size of a marble. Dr. Boulton treated her by urethral suppositories of lead and bismuth, and with medicines, for three weeks, with no benefit, and on March 11th dissected out the cyst *per vaginam*, using one gut suture to draw the vaginal wound together, which was not otherwise closed. The urine was drawn off regularly by the nurse, and the wound had granulated up in seven days, by which time no pus could be expressed from the urethra. She is now quite well, all cystitis having abated.

The sac, when removed, had a rough fibrous capsule firmly connected with the adjacent tissues, and was not a true cyst. It contained dark red, fleshy trabeculæ, suggesting organised blood-clot, and had no smooth epithelial lining. Dr. Percy Boulton thought that the cyst was originally a blood-cyst, the result of injury during parturition, and that connection with the urethra was due to suppuration, inflammation being subsequently kept up by access of urine.

Case 2.—L. T—, aged 40, married twenty-two years, ten children, last fourteen months ago, March 21st, 1889. Complained of dyspareunia for three or four months, and the formation of a painful lump at the vaginal orifice. Had inflammation following podalic version at last confinement, but beyond pain in left ovarian region noticed nothing till ten months afterwards, when the dyspareunia supervened. On examination, signs of old perimetritis were present, the fundus uteri being drawn backwards and to the left. A urethral diverticulum the size of a small walnut was found, containing extremely offensive thin pus, having physical signs as above described. On June 7th, assisted by Drs. Prickett and Rutherfoord, I dissected out

the cyst, which communicated with the urethra by two openings. These were united along the floor of the urethra, the vaginal wound closed by six wire sutures, and a retaining catheter introduced.

The wound healed, but a pinhole opening remained at the anterior end of the incision, which, however, the patient declared caused her no inconvenience, and she refused to have it closed. She is now free from all pain and discomfort.

Dr. Rutherfoord kindly examined the sac for me, and found it, unlike Dr. Boulton's, with no trabeculæ inside, and with a smooth and somewhat glistening outside surface. On section it was mainly connective tissue, with evidence of an inflammatory process on its inner side, upon which no epithelium was traced.

Case 3.—M. E—, aged 27, married three years and a half; one child, two years and a half ago.

October 1st, 1889.—Complains of a tender swelling in the front passage; pressure upon it causes pain and a discharge of irritating matter; for a time, however, after the sac is emptied the gnawing, throbbing pain, which is otherwise always present, is relieved. She had only noticed the lump a month, and says it followed a feverish attack, with much local pruritus and scalding during micturition, which latter symptom she had noticed off and on since her confinement two and a half years ago.

The physical signs of the diverticulum were identical with those already described, the opening into the urethra being about the size of a No. 6 catheter. Efforts were made to apply caustics to this cavity by dilating the front part of the urethra; but, this failing, I operated as before, removing, however, only a portion of the cyst-wall. The woman was directed to pass water in the genupectoral position, and left the hospital cured on the twentieth day.

But few references are made to these cases in literature. Parish* of Philadelphia quotes Chéron's† views, and

* Sajous's 'Annual of Universal Med. Sciences,' vol. iv, 1888, p. 154.

† 'Gazette des Hôpitaux,' 1887.

Jenks* adopts them, considering these cases to be varieties of urethrocele, which should be divided into two classes: 1st, simple localised dilatation of the middle third of the inferior wall of the urethra; and 2nd, a urinary pouch communicating with a urethra of normal calibre by an orifice relatively narrow.

These three observers view these diverticula as being—(1) congenital; (2) caused by union between the urethra and a pre-existing non-congenital vaginal cyst; or (3) determined by a limited tearing of the urethral floor during labour.

In 1869 Dr. Priestley† described three cases, which he thought were due to distention of sebaceous follicles. His first case, and possibly Dr. Hickinbotham's described below, are the only recorded examples in which the cysts were discovered before rupture into the urethra had occurred. In both of these cases, however, rupture into the urethra occurred during the impending labour, and we may assume that this is the common history in the majority of these urethral diverticula. Dr. Priestley's second case is also interesting, for sebaceous material was discovered passing from the cyst. The opening here was in the middle third of the urethra, but was evidently valvular, pressure upon the cyst causing the contents to pass backwards into the bladder. West‡ refers his readers to Huguier's§ work published in 1847 for notes of some of these cases, admitting, however, that he was then (1879) not familiar with them himself. I cannot obtain access to a copy of Huguier's paper.

Dr. Hickinbotham,‖ of Birmingham, publishes a very interesting case which occurred in a nullipara, daily expecting to be confined of her first child. Cephalotripsy was performed because of a rigidly contracted cervix,

* 'Mann's System of Gynæcology,' vol. ii, 1888, pp. 476, 490.

† 'Brit. Med. Journ.,' 1869, vol. i, p. 6.

‡ West and Duncan's 'Diseases of Women,' 4th edit., 1879, p. 629.

§ 'Mémoires de la Société de Chirurgie de Paris,' vol. i, 1847, pp. 326—394.

‖ 'Brit. Med. Journ., 1882, vol. i, p. 613.

and subsequent events seemed to show that the sac then ruptured into the urethra. At all events the cyst at once began to grow rapidly and become tender, presumably by the entrance of urine causing more inflammation, and on the tenth day after labour the cyst ruptured also into the vagina. At a subsequently successful operation by Lawson Tait, the valvular opening into the urethra, of the size of a hempseed, was well seen.

Lawson Tait* has also described four other cases, one in 1875, the others in 1885. He thinks these cysts may be congenital, like intestinal diverticula, or the result of union between the urethra and a cyst of pathological origin.

Englisch,† of Vienna, has seen such cysts at birth. Santesson‡ arguing from a case seen in 1861, thinks they are due to injury from labour, or to clumsy catheterisation, or to rupture of simple vaginal cysts.

Duplay§ has collected six cases, one of which (Gillette)‖ is a case of simple urethrocele, and two others described by Foucher¶ and G. Simon** contain no new points.

Very few modern English text-books of gynæcology make mention of these cases, and, strange to say, neither Emmet nor Skene alludes to any other form of urethral dilatation than the simple urethrocele, though they enter largely into genito-urinary troubles, one case of peri-urethral abscess being mentioned by the latter.

Those who have studied the anatomy of the urethra describe many varieties of glands, closure of whose ducts would lead to the formation of retention-cysts.

Thus Littré's glands, which are little more than mucous membrane reduplications, are described as being about twenty-five in number, running parallel with the urethral

* 'Lancet,' 1876, vol. ii, p. 625; and 'Brit. Med. Journ.,' 1885, vol. i, p. 982.

† 'Wiener med. Presse,' 1881, s. 599.

‡ 'Nordiskt med. Archiv,' vol. xvi, 1884.

§ 'Archiv. Gén. de Med.,' vol. vii, 1880.

‖ 'L'Union Médicale,' April 12th, 1873.

¶ 'Moniteur des Hôpitaux,' 1857, p. 758.

** 'Monatschrift für Geburtsk.,' xxiii, s. 245.

floor, and opening into its anterior half or two thirds by apertures admitting a bristle.

The follicles of Morgagni, again, are numerous small racemose glands opening by minute ducts at right angles to the urethral floor.

Skene's* ducts, which appear to be the efferent canals of Max Schüller's† glands, are two in number, run parallel to the anterior third or half of the floor of the urethra, and open into it just inside the meatus.

Any of the above ducts or glands may become retention-cysts by closure of their orifices by urethritis, peri-urethritis, or even accidental plugging. As a result of suppuration or rupture the cyst then opens again into the urethra, and the inflammation is kept up by urine finding access to its cavity at each act of micturition, and, owing to the small and often valvular character of the opening, the distention of the cavity increases.

As these diverticula appear to be always opposite the middle third of the urethra, it seems improbable that they can be due to occlusion and distention of Skene's ducts which are opposite the anterior third, unless, as Mr. Alban Doran‡ suggests in his review of Bland Sutton's§ work on Gartner's duct, Skene's ducts are the anterior termination of Gartner's ducts. Though Gartner's ducts are doubtless responsible for vaginal cysts near the cervix, Max Schüller,† Fischel, Dohrn, Rieder,‖ all deny that it ever reaches the urethra. Max Schüller's glands, from which Skene's ducts lead, seem to be the most likely origin of these retention-cysts.

Blood-cysts, as in Dr. Percy Boulton's case, may be another mode of origin, and injury to the urethral floor as suggested by Chéron, Santesson, and others, may also be occasionally productive of a pseudo-cyst, whose sym-

* 'Diseases of Women,' 1889, p. 616.

† 'Ein Beitrag zur Anatomie der weiblichen Harnröhre,' 1883.

‡ 'Lond. Med. Rec.,' 1886, p. 248.

§ 'American Journ. of Obstetrics,' vol. xiii.

‖ 'Lond. Med. Rec.,' 1885, p. 88.

ptoms and physical signs may greatly resemble those of true retention-cysts.

Pregnancy, owing to greater local activity, seems to be a starting-point for the formation of the diverticula, and the impending labour may suffice to cause rupture into the urethra (Priestley's and Hickinbotham's cases), thus anticipating the slower effects of a subsequent suppuration.

As the ætiology of these cases is so distinct from that of simple dilatation, it seems a pity that both should be grouped under the one word urethrocele.

The treatment of these diverticula has been varied. So long as the cysts are not in communication with the urethra they can be treated like Bartholini's retention-cysts, but when urine is obtaining intermittent entrance the problem is more difficult.

Palliative methods have invariably failed. Mr. Alban Doran* has kindly referred me to Santesson's case which occurred in 1861, which seems not to have been described till 1884.† It occurred in a widow, whose dysuria, pruritus, and vaginal swelling dated from a confinement twelve years previously.

The physical signs differed from the typical in only one respect, pressure upon the swelling *per vaginam* causing its contents to go backwards into the bladder. After four years' trial of palliative treatment, pressure, caustics, &c., an elliptical piece was cut from the vaginal wall, and from the wall of the diverticulum, the wound being united by sutures. Some sloughing occurred, the wound taking five weeks to heal, and four years afterwards the sac again enlarged, urethritis, cystitis, and nephritis supervened, the patient dying six years after the failure of the first operation. Santesson now states, after twenty-three years' interval, without apparently meeting with another case, that in any future case he would remove the whole diverticulum, suture the margin of the wound, and keep a

* 'Lond. Med. Rec.,' 1885, p. 93.

† 'Nordiskt med. Archiv,' vol. xvi, 1884; 'Schmidt's Jahrbücher,' cciii, part ix, art. 479.

catheter *in situ* till union was complete; and this method was adopted with success by Lawson Tait in his four cases. In 1868 Dr. Priestley,* in consultation with Sir James Paget and Sir Spencer Wells, proposed to pass a seton through a urethral diverticulum for its obliteration, and, if this proved ineffectual, to lay it open *per vaginam*. The patient, however, shrank from any surgical interference, and her subsequent history is unknown.

Chéron,† in 1887, advocated slitting up the urethra from the orifice of communication to the meatus, and the one case he saw and thus treated was cured. From the experience brought by all these cases it seems that there are two ways of dealing surgically with them, and that if we desire to prevent such retrogressive changes as occurred in Santesson's case, we should promptly adopt one or other, or some operation.

1st. Where urethritis or cystitis already exists the cyst-wall should be dissected out, and the vaginal wound left wholly or partly unclosed to allow of free drainage. In the rare event of union not occurring, a secondary operation would be required later. This was Dr. Boulton's method of operating (Case 1).

2nd. Where the urine is normal, and the urinary passages are healthy, the cyst should be dissected out, the opening into the urethra enlarged to allow of urethral drainage, and the vaginal wound at once closed with wire sutures, which should not enter the urethra itself.

Till union is complete, the vagina should be kept aseptic as far as possible, and the urine should be drawn off either at regular intervals or by a retaining catheter; or, as was adopted in my second case, the woman may be told to pass water in the genupectoral position.

In dissecting out the diverticulum the presence of a large bougie in the urethra is helpful, and the contents of the cyst should not be pressed out lest it become flaccid. Before the sac is separated from the urethra it may be

* 'Brit. Med. Journ.,' 1869, vol. i, p. 6.

† 'Gazette des Hôpitaux,' 1887.

incised, and after its contents have escaped the small opening into the urethra can be well seen.

In my second case I removed only a portion of the sac; but though the cure is complete, it seems safer to dissect out the whole cyst-wall.

Dr. Braxton Hicks said that in the course of his practice he had seen five cases of the kind; in one the cavity was filled with phosphatic concretions. He had treated them by opening them freely from the vagina, keeping the opening free till the urethral opening closed, which he found to occur after a little time. He thought, however, that the plan recommended by the author of the paper was more precise.

Dr. Herman thought that the title of the paper would have more correctly indicated its contents had it been "*inflamed* urethral diverticula." These diverticula, even when converted into retention-cysts by closure of their ducts, caused no symptoms such as Dr. Routh had described until they became inflamed. He thought that cysts discharging fatty matter and opening into the urethra were probably dermoid. In the 'Transactions' for 1886 he had described a case very similar to one of those related in the present paper. He had reported that case under the title "abscess of the urethra," a term which he had used as not implying any theory of causation. The interior of the cavity in that case was ragged, not smooth, like a cyst-wall. This was also observed in one of Dr. Routh's cases. Dr. Herman had suggested that the condition might have been a result of chronic congestion of the urethra, such as had been described by Sir Charles Clarke, and after him by Dr. West. This condition was especially frequent in pregnancy, and he observed that Dr. Routh had commented on the frequency with which the suppuration appeared to have been induced by pregnancy and labour. Dr. Routh attributed it to injury during labour, and he (Dr. Herman) thought the pressure sustained during delivery would be more likely to bring about suppuration if the congestion described by Sir C. Clarke had been present before delivery. The word "diverticulum" was usually employed to denote a communicating cavity due to a congenital peculiarity of structure, and in that sense of the word the cases of abscess opening into the urethra, to the description of which in the abstract the figs. 2 and 3 were prefixed, were not true diverticula. They could only be called diverticula in the same sense as a pelvic abscess opening into the rectum could be called a rectal diverticulum. Dr. Routh's paper was a valuable contribution to our knowledge of the subject.

Dr. M. Handfield-Jones dwelt upon one method in which these urethral diverticula might originate. He had shown at a previous meeting of the Society two small cysts which he had removed from the vagina of a patient who had been sent to him complaining of a cystocele. The two cysts were situated beneath the floor of the urethra, and during the process of removal were found to be so close to the floor of that canal that it had been difficult to avoid wounding the urethra in the operation. Had they not been removed, these cysts would probably have opened into the canal of the urethra as their growth progressed, or if a labour had supervened they would probably have suppurated from pressure and established a communication with the urethra. In either case a so-called urethral diverticulum would have been formed, and, by the irritation caused through the admission of urine, have given rise to symptoms rendering an operation necessary.

Mr. Alban Doran believed that the condition described by Dr. Amand Routh could well arise from one of at least two sources. The diverticulum might originate in a cyst or in some change in a gland or its obstructed duct; for cysts certainly developed near the urethra, and glands undoubtedly existed in the mucous membrane of that canal. On the other hand, the position of the urethra and the physical conditions to which it was exposed allowed of protrusions of the mucous membrane. In order to be certain about the precise character of urethral cysts and glands, the adult urethra should be studied microscopically. Hitherto writers on these structures had relied too much on homologies, and on pathological and morphological theories. Questions about Gartner's ducts and glands which might be homologues of the vesiculæ seminales in the male were very interesting, but not to the purpose in the present discussion. On the other hand, a urethral diverticulum might have been a diverticulum from the first and never a cyst. It then resembled the "distention diverticula" of the small intestine to which Mr. Doran referred in a paper in the 'Transactions of the Pathological Society of London,' vol. xxix, p. 122 (see Dr. Hilton Fagge, ibid., vol. xxvii, p. 146). Pouches of mucous membrane protruded between deficiencies in the muscular coat of the intestine. The urethra was still more liable to an homologous condition, since its muscular coat might be damaged in the second stage of labour.

Dr. Amand Routh said, in reply, that he could find no word better able to express all the forms of these cysts than "diverticulum;" and, in reply to Dr. Herman, he thought that the moment urine obtained access to the cyst inflammation ensued. Perhaps other origins of these cysts were from a subserous follicle or from a dermoid cyst, as had been stated by Dr. Priestley. He thanked Dr. Braxton Hicks and Dr. Handfield-

Jones for their notes and early history of other cases. He had operated on a fourth case successfully since the paper was sent in, in which cystitis and pyelitis had already occurred. In this case, owing to the purulent urine, he had only partially closed the vaginal wound, so as to allow free vaginal drainage, and the wound was quite closed in ten days.

Annual Meeting.

The audited balance-sheet of the Treasurer (Dr. Herman) was read.

It was proposed by Dr. J. Watt Black, seconded by Dr. Boxall, and carried unanimously—"That the audited report of the Treasurer just read be received, adopted, and printed in the next volume of the 'Transactions.'"

The report of the Honorary Librarian (Dr. Horrocks) was then read.

Report of the Honorary Librarian for 1889.

"During the past year 134 volumes have been added to the Library. These are made up of 45 books and 15 tracts (one vol.) given, and 29 books and 30 tracts (two vols.) bought. The periodicals make 57 volumes. The total number of books in the Library now amounts to 4138.

"Peter Horrocks."

Dr. Braxton Hicks, after congratulating the Honorary Librarian on his report, expressed a hope that the Fellows would keep in view the collection of engraved portraits of past Obstetricians, and add to it as opportunities occurred. It was moved by Dr. Hicks, seconded by Dr. Montagu Handfield-Jones, and carried—"That the report of the Honorary Librarian be received, adopted, and printed in the 'Transactions.'"

The report of the Chairman of the Board for the Examination of Midwives (Dr. J. Watt Black) was then read.

BALANCE-SHEET OF THE OBSTETRICAL SOCIETY OF LONDON.

(Abstract of the Receipts and Expenditure for the year ending December 31st, 1889.)

1889. RECEIPTS.			£	s.	d.
To balance from 1888			420	16	4
„ (1) 652 ANNUAL SUBSCRIPTIONS at £1 1s., realising			684	13	2
„ (2) 7 COMPOSITION FEES at £10 10s.			73	10	0
„ (3) MIDWIVES' EXAMINATION FEES			164	6	6
„ (4) SALE OF 'TRANSACTIONS' and 'RULES FOR INFANT MANAGEMENT,' per Longmans	£50 18 8				
Do. do. per Society	0 10 3				
Do. Duplicate Books	0 1 3	—	51	10	2
„ (5) INTEREST on Consols			49	14	7
Amount of Stock, 2¾ per Cent. Consols, standing in the names of the Trustees	£1800 0 0				
			£1444	10	9

1889. EXPENDITURE.			£	s.	d.
By (1) 'TRANSACTIONS,' VOL. XXX, Printing, Lithography, Paper, Binding, Index, and delivery of Volume			378	9	3
„ (2) LIBRARY: Books Purchased and Binding			50	3	6
„ (3) MUSEUM AND LIBRARY: Rent	£100 0 0				
Librarian, Salary and Commission	198 6 9				
Furniture, Repairs to ditto, Cleaning, Coals, Gas, &c.	25 13 4				
Petty Disbursements	1 18 6	—	325	18	7
„ (4) GENERAL MEETINGS AND OTHER EXPENSES: Contribution for use of Meeting-room	£29 8 0				
Expenses of Meetings	31 18 5				
Stationery and Postage	27 2 9	—	88	9	2
„ (5) EXAMINATION OF MIDWIVES: Fees to Examiners	£123 4 10				
General Expenses	26 7 5	—	149	12	3
„ (6) EXTRAORDINARY EXPENSES: Legal Charges			5	19	8
„ (7) BANKING EXPENSES: Commission, Stamps, Cheque Book, &c.			0	11	6
Balance at Bank			445	6	10
			£1444	10	9

Audited and found correct,

(*Signed*) F. H. CHAMPNEYS.
AMAND ROUTH.
JOHN D. MALCOLM.
ROBERT BOXALL.
PERCY BOULTON.

Report of the Chairman of the Board for the Examination of Midwives.

"The candidates for the diploma of the Society still continue to increase in number every year. In 1889 they amounted to 170, of whom 143 passed, 27 failed, including 2 absent, or 15·8 per cent. In 1888 there were 149 candidates with 14·7 per cent. of rejections. The total number examined since 1872, when the Midwives' Diploma was first instituted, up to the end of 1889 has been 923. Of these, 761 have obtained the diploma and 154 have failed, or 16·6 per cent.

"J. WATT BLACK,
"*Chairman.*"

It was proposed by Dr. WILLIAM DUNCAN, seconded by Dr. CLEVELAND, and carried *nem. con.* "That the report of the Chairman of the Board for the Examination of Midwives be received, adopted, and printed in the 'Transactions,' and that the best thanks of the meeting be given to Dr. Black."

The following alteration in the Laws was put from the Chair and carried:—

CAP. V.—OF THE CONTRIBUTIONS OF FELLOWS. In Sect. 3, *instead of* "Fellows wishing to compound for their Annual Subscriptions may pay a Composition Fee of Ten Guineas," *to substitute* "Fellows wishing to compound for their Annual Subscriptions may pay on admission a Composition Fee of Fifteen Guineas; after Ten Annual Payments, Ten Guineas; or after Twenty Annual Payments, Five Guineas."

The result of the Ballot, the Scrutineers having presented this report, was declared by the President as follows:

President.—Alfred Lewis Galabin, M.A., M.D.

Vice-Presidents.—Percy Boulton, M.D.; Francis Henry Champneys, M.A., M.D.; Arthur Guy Elkington (Deputy Surgeon-General); Thomas Crawford Hayes, M.D.; Evan Jones (Aberdare); A. E. Aust Lawrence, M.D. (Clifton).

Treasurer.—G. Ernest Herman, M.B.

Chairman of the Board for the Examination of Midwives.—James Watt Black, M.D.

Honorary Secretaries.—Alban Doran; Peter Horrocks, M.D.

Honorary Librarian.—William Duncan, M.D.

Other Members of Council.—Thomas Edward Bowkett; Robert Boxall, M.D.; Albert Charles Butler-Smythe; W. Radford Dakin, M.D.; S. Houston Davson, M.D.; Henry Gervis, M.D.; Robert Alexander Gibbons, M.D.; Frederick B. Hallowes (Redhill); Edwin Hollings, M.D.; Henry Ambrose Lediard, M.D. (Carlisle); Henry Colley March, M.D. (Rochdale); Richard Henry Milson, M.D.; Oliver Calley Maurice (Reading); Thomas Cargill Nesham, M.D. (Newcastle-on-Tyne); Edward James Nix, M.D.; John Baptiste Potter, M.D.; Herbert R. Spencer, M.D.; Harry Speakman Webb (Welwyn).

The President then delivered the Annual Address.

ANNUAL ADDRESS.

GENTLEMEN,—The past year has been eventful in the history of our Society by the termination in it of our long-standing custom of holding our meetings in the rooms of the Royal Medical and Chirurgical Society at 53, Berners Street. That we are still passing through a transition period is shown by the fact of our being now present in this Library to hold our Annual Meeting.

It is now eight years since the Library of our Society was removed from the rooms formerly occupied in Regent Street to those in which it now is. By that removal we gained more spacious and convenient accommodation for our books, and we gained also the advantage of having our library next door to our place of meeting, and to the library of the Royal Medical and Chirurgical Society. We did not gain another advantage which at the time we had stipulated for, namely security of tenure under a lease. The original holder of the ground lease having failed to fulfil his engagements to his landlord, the lease for which we had made a formal agreement was never granted us, and from that time to this we have been annual tenants merely.

It was under these circumstances that, through the removal of the Royal Medical and Chirurgical Society to Hanover Square, we lost the convenience of the proximity of the two houses. In following that Society to its new abode, so far as regards the use of the meeting-room, it was evident that we should gain a great advantage if we could obtain also a library in the same house, and thus secure the benefits of that more favoured locality, both for our meetings and for our library. Your Council has been for some time engaged in negotiations for this object with the Royal Medical and Chirurgical Society, and I have the

pleasure to announce that these negotiations are now practically complete, some minor legal details only not being finally decided. We may cheerfully bear, therefore, whatever inconvenience may have been felt in holding the present and the last few meetings in this library, in looking forward to the permanent gain which is shortly to follow.

We shall, in future, have a larger and better arranged meeting-room than formerly, as well as a commodious room adjoining for exhibition of specimens. We shall have two good rooms on the first floor for our library, which will afford greater space for our books than we at present possess, and so allow room for progressive expansion. Arrangements have also been made for the use, in addition, of a waiting-room for the midwives at our quarterly midwives' examinations, at which, owing to the annually increasing number which present themselves, much inconvenience has been felt in our present premises. We shall have, in addition, the security of a twenty-one years' lease, and we shall have the benefit of the electric light, both for the meeting-room and for the library, and thus shall be exempt in future from the injurious effect of gas upon our books. Naturally some increase of rental is attendant upon all these advantages, and the removal to a more expensive locality ; but it is an increase which, in the opinion of the Council, the prosperity of the Society will enable it to bear. I may justly congratulate the Society upon the prospect before it, which, I feel sure, will be the inauguration of an era of prosperity yet greater than before.

In other respects also I have to congratulate you upon the satisfactory condition of your Society. An annually increasing number of candidates present themselves for our diploma for midwives. During the past year the number has been 170, of whom 143 passed ; and the total number on the register is now 761.

The Society has thus been doing an important work in this respect. But it has always been in favour of legisla-

tion to establish a register of midwives, and suitable test examinations throughout the country. In default of legislation, which lack of time for useful work in Parliament has hitherto prevented, it has been proposed of late to establish a voluntary register for midwives, in association with a similar register for nurses. It is obvious that a voluntary register might fail to a great extent to secure the benefits which would follow from a compulsory one, since it would become futile if any large proportion of the midwives did not choose to register themselves. Moreover, the midwives themselves, so far as they are represented by the Midwives' Institute, the members of which are holders of the diploma of our Society, prefer to stand by themselves, and decline to be associated with nurses. I am glad to say, therefore, that this year there is again a possibility at any rate of legislation, since a bill is to be introduced into Parliament by Mr. H. F. Pease, following in the main the lines of the draft bill drawn up some years ago by the Obstetrical Society, but giving to the new County Councils the duty of appointing the examining bodies. The project has received the approval of the General Medical Council.

The number of volumes in the Library amounts now to 4138, 134 having been added during the year, of which 46 were donations.

The satisfactory financial position of the Society is shown by the Treasurer's balance-sheet, which has been read. The surplus for the year is not, indeed, so great as on some previous occasions, but even this is itself a testimony to our sound position; for the reason of it is that your Council has thought the funds of the Society to be in so favourable a condition that it could devote the main part of the fees paid by midwives for examination to giving an honorarium to the examiners, who for many years had performed their labours gratuitously, and whose work was becoming every year more arduous, owing to the multiplication of candidates.

The total number of Fellows on December 31st was 738.

Thirty-eight new Fellows were elected during the year, while 37 were lost by resignation and erasure, and 9 by death. In view of this very slight decrease in our numbers, which has occurred both in the last year and in the one preceding, it may not be out of place to suggest to all our Fellows that a large influx of new Fellows, such as has, I believe, already commenced to the Royal Medical and Chirurgical Society, would be no inappropriate accompaniment to our removal into a more favoured locality, and the consequent increase of our rental.

Charles Davidson, M.D. St. Andrews, F.R.C.S.Edin., L.K.Q.C.P.I., died on January 19th, at the age of forty-seven years. He was brought up, although not born, in the Orkney Islands. He studied at Edinburgh University, and there took the degree of F.R.C.S.Edin. He then proceeded to London, where his first appointment was that of Medical Officer to Bethnal House Asylum. After a time his health gave way; he resigned that appointment, and spent some time in travelling. Having regained his health, he settled in Cassland Road, South Hackney, where he spent about twenty years in quiet, unostentatious hard work. He was elected a Fellow of the Society in 1883. He was a member of the Council of the Metropolitan Counties Branch of the British Medical Association, and took an active interest in establishing the East London and South Essex division of the branch. He also held the office of Surgeon to the 7th Middlesex Artillery Volunteer Brigade.

Although not in robust health for the last three years, Dr. Davidson seemed fairly well and in good spirits, and in the summer of 1888 enjoyed a holiday in the Vosges. Returning to London he resumed active work, but met with a chill which cut him off after a few days' illness.

Dr. Davidson was a man of wide culture; his opinion was worth having on the style of a book, the usefulness of an instrument, or the choice of a picture. His professional attainments were great. Perhaps he excelled most as a therapeutist: his knowledge of drugs was extensive

and precise. His code of professional honour was high, and he acted up to it. His keen intellect was guided by a warm heart, and brightened by a manner genial as summer.

Hunter Jackson Barron, M.D., C.M.Edin., L.R.C.P.Lond., M.R.C.S.Eng., died on February 9th, at the early age of thirty-one. He was educated at the Charterhouse School. He very early evinced his love for natural history pursuits, and had made his choice of the profession of medicine. He became a student at St. Thomas's Hospital, and matriculated at the London University; but having formed the opinion that the course was too protracted, he went to Edinburgh. He there took the degrees of M.B. and C.M. in 1883, and two years later that of M.D. While at Edinburgh, a patient in the hospital requiring it, he volunteered to supply the necessary blood for transfusion.

Dr. Barron paid especial attention to the study of zoology, taking Sir Wyville Thomson's silver medal for practical zoology at Edinburgh in 1879, and being an occasional contributor to the British Museum of specimens of British Mollusca, of which he had himself a large and beautiful collection. He was also Pattison Medallist in medicine at Edinburgh, and became a Fellow of the Linnæan Society. He was elected a Fellow of this Society in 1886, having established himself in practice in Finchley in 1885.

Dr. Barron was distinguished in athletics as well as in science. He had been a good swimmer from a very early age, and was well known in the swimming world as a first-rate amateur in the art. He took very great interest in this pursuit, and did all that he possibly could to encourage it. He had been captain of the Otter Swimming Club, and also hon. secretary of the Swimming Association of Great Britain from 1880 to 1883, and president in 1884 and 1885, doing much in both those capacities for the encouragement of the art. On his resigning the position of president in 1886, he was presented by the delegates of the Association with a handsome testimonial, in apprecia-

tion of his efforts to promote and popularise swimming generally. Portraits and memoirs of him as an amateur swimmer appeared in the 'Bicycling and Athletic Journal' of November, 1880, and the 'Sporting Mirror' of May, 1882, and he had from time to time contributed articles on his favourite pastime to the 'Field' and other papers. His love for swimming as a sport was subordinate, however, to his desire to encourage it as a health-giving, life-saving art, and he was never more pleased than when lecturing to a school or institute on the subject, or framing rules for their guidance in forming clubs.

Dr. Barron suffered much mental anxiety in the year 1886, and in the autumn of that year the first symptoms of diabetes made their appearance. He never deceived himself as to the result, but preferred to work on until the end, rather than give up. As a matter of fact he visited patients two days before his death, and the final end was due to his catching cold on his rounds.

Richard Broughton Bothamley, M.R.C.S.Eng., L.S.A., died on March 14th, at the age of thirty-eight. He was born in Lincolnshire, and received his medical education at St. Thomas's Hospital. At Sir William Mac Cormac's advice in 1876 he went out to the hospital of the National Society at Nish during the Russo-Turkish war, and did service also in the field in that war. His services as a surgeon were highly appreciated, and he was decorated by the Ottoman Government with the Order of the Medjidié.

Soon after his return to England he engaged in practice at Bromley, Kent, where he was highly esteemed as a practitioner by all classes, and held the offices of District Medical Officer, and also that of Medical Officer of Health. He died of typhoid fever, and may be said to have fallen a victim to his zeal for his profession, for he worked almost to the last, and kept his bed but little over a week.

Samuel H. Wheatcroft, L.R.C.P.Edin., M.R.C.S.Eng., L.S.A., died, August 24th, 1888, at the age of forty-eight,

but his death was not notified until after the last annual meeting. He was born at the Bridge House, Cromford, Derbyshire, being the third son of Abraham Wheatcroft. He was educated at University College Hospital and Sheffield Medical School. He was elected a Fellow of the Society in 1870. For the last three years of his life he practised at Brandsburton, in the East Riding of Yorkshire. He was devoted to his patients, by whom he was much beloved and respected, especially by the poorer class. He was also a sportsman, and was fond of fishing. He died of rheumatic fever after three weeks' illness.

George Charles Kernot, Ph.D.Giessen, L.D.S., R.C.S., L.S.A., died in June, 1888, at the age of sixty-four, but his death also was not notified until the present year. He practised in Elphinstone Road, Hastings, and was elected a Fellow of the Society in 1865. He was the author of works, "On Asthma, Influenza, and Bronchitis," published in 1852, and "The Question of Vaccination, its Advantages and Present Dangers," published in 1870.

Dr. Oscar Prevôt died at San Remo on March 19th, at the age of fifty-two. He was born at Riga, where his father practised as a medical man. He was educated at a school at Birkenruh, near Wenden. In the year 1857 he proceeded to Dorpat University. He there studied medicine from 1857 to 1861, and again, after a short interval, from 1863 to 1864, taking his Doctor's degree in 1864. After this he visited the Universities of Berlin, Vienna, Würzburg, and Paris. On his return from abroad he settled in practice at St. Petersburg, where he held the office of Director ("Ordinator") of an ophthalmic hospital from September, 1865, to March, 1867. He then removed to Jaroslaw, being appointed Director of the State Hospital in that town. Next he was appointed chief physician to the Gynæcological Department of the Findelhaus Lying-in Hospital at Moscow, and passed the last years of his life in that city, where he had a large obstetrical and gynæcological practice. He was elected a Corresponding Fellow of our Society in 1876.

John Rutherford Kirkpatrick, M.D.Dubl., F.K.Q.C.P. Ireland, died on April 16th, at the age of fifty-seven. He became a Licentiate of the Royal College of Surgeons of Ireland in 1855, and two years subsequently obtained the Fellowship of that College by examination, but in 1879 resigned it on being elected a Fellow of the Royal College of Physicians of Ireland, of which he had previously been a Licentiate. He was also an M.B. of the University of Dublin, having been educated at Trinity College, Dublin, and took the M.D. degree in 1883. He was appointed Assistant to the late Dr. McClintock, the then Master of the Rotunda Hospital, about the year 1858, and served in that capacity for the usual term of three years. In 1882 he was elected King's Professor of Midwifery by the Fellows of the Royal College of Physicians, and lectured in the school of the University of Dublin. His seven years' term of office would have expired in July, and very recently he was re-elected for a further term of seven years. He was also Obstetric Physician to Sir Patrick Dun's Hospital, and Physician to the Maternity Charity in connection with it. He was a Member of the Royal Society of Dublin, and a Fellow of the Academy of Medicine in Ireland, and had been Examiner in Midwifery for the College of Surgeons and the Queen's University of Ireland. He was elected a Fellow of this Society in 1862.

Dr. Kirkpatrick's life was comparatively uneventful. He did not contribute very largely to literature, but was the author of various papers on obstetrical subjects, among which may be mentioned one "On the Prevention of Accidents arising from the Use of Pessaries," and one on the "Management of the Perinæum during Delivery." He soon acquired a very large obstetric practice, which he retained up to the date of his last illness. His kind and gentle manners endeared him to his patients. He was beloved and esteemed by all who knew him, and never had an enemy. His health had been for some time declining. The actual cause of death was not ascertained, but he became very anæmic, and appeared to die of

anæmia. His remains were interred in Mount Jerome Cemetery, and the funeral was large and representative.

Lawrence Trent Cumberbatch, M.D. St. Andrews, M.R.C.P.Lond., M.R.C.S.Eng., died August 18th, at the age of sixty-five. He was born at Barbadoes, where his father owned an estate. Early inclination led him to the study of medicine, and at the age of sixteen he entered as a student at Trinity College, Dublin, where he took the degree of B.A. in 1846. After this he studied for some time in Paris, and then, in 1848, took the Membership of the Royal College of Surgeons of England, not being able to afford the time necessary to graduate in medicine. He next became assistant to a practitioner at Chipping Norton, who had an extensive practice, and held several appointments, including a large Union. By laborious work in this position he gained extensive experience both in obstetrics and in general medicine and surgery.

His first commencement of practice in London was decided by an accident. A nomination for a commission as assistant-surgeon in the army had been obtained for him; he had resigned his appointment, and had come up to London to present himself at the War Office. It was then found that his diploma of M.R.C.S.Eng. could not for the moment be produced, his uncle to whose care he had entrusted it being out of town, and thus his commission was lost. In this dilemma he decided to commence practice near Lowndes Square; and, having influential relations and friends at the West End, he soon began to attain success.

Eventually he decided to give up general practice, and limit himself to obstetric and medical work as a physician. Accordingly, in 1866 he took the degree of M.D. at St. Andrews, and the Membership of the Royal College of Physicians of London. His inclination for obstetric practice was much encouraged by three influential friends, all having large and fashionable midwifery practices, the late Sir Charles Locock, Dr. Cape, and Dr. Gream. All these availed themselves frequently of his obstetric skill; and

thus it happened that before long Dr. Cumberbatch himself was in the full tide of a large obstetric practice among the upper classes at the West End.

His great success was the more remarkable from the fact that the only public appointment he ever held was that of physician to the Economic Life Insurance Office, which he retained up to the time of his death. It was due to his own talent, industry, and professional skill. A writer in the 'Lancet' says, "Only those who have had the advantage of meeting him in consultation can know how valuable was his opinion; how thoroughly honest and straightforward he was, and of what comfort and support in difficult and complicated cases. To his patients he endeared himself by his sympathy, as well as by his success in treating them. In addition to being a good classical scholar he was well read in subjects apart from his profession, and was always thoroughly versed in the topics of the day. As a host or at a dinner party he was delightful, and those who have met him know what an acquisition he was, full of amusing anecdote and sparkling humour." Dr. Cumberbatch was elected a Fellow of our Society in 1862, was a Member of Council from 1868 to 1870, and was Vice-President in 1878.

Dr. Cumberbatch had had a warning about seven years before, discovering that his pulse had suddenly fallen to about 40 in the minute. Acting on the advice of medical friends whom he consulted, he then gave up his midwifery practice, and limited himself to consulting and medical work. Nevertheless he remained fully occupied with the work which now fell to his share as a general physician. After a busy season he left London on the night of August 16th to join his cousin's yacht in Scotland. With the exception of some fatigue he appeared well on his arrival. On Sunday, 18th, at breakfast, he appeared in his usual spirits. Soon afterwards he was seized with severe pain, which at first he attributed to indigestion, but which was evidently angina pectoris. He remarked that he had had a slight attack of the same kind the previous

Sunday. The pain increased, and in less than half an hour from the moment of seizure he died.

Francis James Bailey, L.R.C.P.Lond., M.R.C.S.Eng., and L.S.A., died October 30th, at the age of fifty-six. He was the son of Mr. J. Bailey, surgeon of Blackburn. He studied medicine at Charing Cross Hospital, took the qualifications of M.R.C.S.Eng. and L.S.A. in 1856, and in 1871 became a Licentiate of the Royal College of Physicians of London. He began practice in Liverpool as partner to Dr. Nottage, and took the practice on the retirement of the latter.

He acquired a high-class practice, was well known in professional and literary circles, and took an active part in the work of several learned societies. He was Vice-President of the Lancashire and Cheshire Historic Society for upwards of eleven years, and also President of the Liverpool Philomathic Society. At the time of his death he was Chairman of the Dental Hospital, and Vice-President of the Liverpool Medical Institution. He was also a prominent mason, being P.M. of the Croxteth United Service Lodge. He was much interested in the education of the deaf and dumb, having served for seventeen years as Honorary Surgeon to the Deaf and Dumb School, and also to the Adult Deaf and Dumb Society. At the last meeting of the Medical Institution before his death he spoke against the introduction of the pure oral method of training the deaf. He held the rank of Surgeon-Major (Honorary Lieutenant-Colonel) in the volunteers, having served in his corps since 1862, and having accompanied it to Aldershot in 1885.

Dr. Bailey had not been in good health for some time, but continued his ordinary work till the day before his death. He had an apoplectic seizure of a very severe character, never rallied, and died in a few hours. His funeral was attended by a numerous circle of friends from the medical profession, the Volunteer force, and Masonic body, as well as from the learned societies to which he belonged.

Dr. Bailey was elected a Fellow of our Society in 1880, and contributed to the journals some papers on obstetric subjects.

The scientific work of our Society during the year, as contained in the volume of 'Transactions' just ready, will be found, I believe, not to fall short of that of previous years. The specimens shown have been of great pathological interest, bearing mainly upon diseases of women, but in some cases also upon points connected with obstetrics.

No less than four specimens have been shown of anencephalic fœtus, and we have had besides "Notes on a Case of Anencephalic Monster" in the form of a paper by Dr. H. C. Hodges. One of these monsters shown by Mr. Alban Doran had the peculiarity that there was a mass of rudimentary brain-substance covered with pia mater, which Mr. Doran considered to support the theory that the anencephalic monster results from rupture of a hydrocephalic head at the third or fourth week of pregnancy. In Mr. Hodges' case there was a soft pedunculated brain-sac, lying behind the frontal bone, which was ruptured in delivery.

We have had also an unusual number of specimens bearing on the pathology of pelvic hæmatocele. While some of the sources of blood which are commonly assumed to be possible in this affection, such as regurgitation from the uterus of menstrual blood, or rupture of varicose veins in the broad ligament, rest rather upon *a priori* assumption than upon demonstration, it has been abundantly proved that one possible cause is bleeding from a diseased Fallopian tube, whose ostium remains patulous. Two specimens where this condition had given rise to hæmatocele were shown during the year, one by Dr. Playfair, one by Dr. Cullingworth. Another somewhat different source of hæmorrhage was shown in another specimen, presented also by Dr. Cullingworth, in which a hæmatosalpinx had resulted from rupture of a varicose vein in the lining of the Fallopian tube. How small may be the source of a fatal intra-pelvic hæmorrhage was strikingly illustrated by

a specimen shown by Mr. Knowsley Thornton, in which an extra-uterine sac, not larger than a hazel-nut, and situated close to the angle of the uterus, had ruptured. Mr. Thornton deduced from the specimen the important suggestion that in such a case, the patient being greatly collapsed, it would be better not to remove the tube, but simply arrest the bleeding by a double ligature. A still more rare form of fatal intra-pelvic hæmorrhage was illustrated by a specimen of pelvic hæmatoma after delivery, presented by Dr. Boxall.

The rarer forms of tumour in or near the ovaries have been illustrated by several specimens. Two were of fibromyxosarcoma of the ovary, shown, one by Dr. Handfield-Jones, one by Mr. Meredith. Dr. W. Duncan showed a myoma of the broad ligament; while tumours of the ovary, partly adenomatous, partly dermoid, were shown by Mr. Bland Sutton and Dr. Carter.

Many specimens have been shown throwing further light upon inflammatory diseases of the uterine appendages. Distended tubes have been shown by Dr. W. Duncan, Dr. J. Phillips, and Dr. Cullingworth. But the specimen shown by Dr. Playfair was of special practical significance, where death had followed the skilful and successful removal of an intra-uterine polypus, and was found to be due to a pyosalpinx which had escaped detection. Still more instructive, from the pathological point of view, were the specimens associated with the paper on the "Closure of the Ostium in Inflammation and Allied Diseases of the Fallopian Tube," by Mr. Alban Doran, who based upon these specimens a distinction between salpingitic closure and perimetritic closure of the ostium.

A curious point bearing upon the microscopic diagnosis of the nature of membranes expelled from the uterus was raised by a specimen of dysmenorrhœal membrane exhibited by Mr. Alban Doran. The patient had had her ovaries and tubes removed a year before, and sections of the membrane showed large cells resembling decidual cells.

Special interest attaches to Dr. Münchmeyer's apparatus for the transfusion into the cellular tissue of a sterilised saline solution in cases of hæmorrhage, which was shown by Dr. Matthews Duncan. The interest belongs not merely to the actual instrument, but to the fact that anyone can easily improvise an apparatus for carrying out this method, which has been practised to a considerable extent in Germany and elsewhere, and which is alleged to give results quite as great as those of an intra-venous injection of saline fluid. All that is wanted is an aspirator needle, sterilised by the flame of a spirit lamp, a piece of elastic tubing, and a large funnel. An antiseptic solution is first passed through the apparatus, and then the saline solution is injected into the cellular tissue by the force of gravity. It is diffused in that tissue, if necessary, by massage; and the flow can be accelerated by running the oiled finger and thumb down the outside of the tube.

Yet it may be well to remember the investigation made some years ago by Prof. Schäfer for this Society by numerous experiments on animals. Prof. Schäfer concluded from those experiments that the cause of death is generally lack of sufficient blood-corpuscles to carry on respiration, that intra-venous injections of saline fluid are therefore of no avail, and that the only means of saving life is direct transfusion of blood from an animal of the same species.

The papers of the year have been somewhat above the average in number, and midwifery has not had quite so much preponderance as usual over the diseases of women. Of twenty-one papers, eleven were on obstetric subjects, nine on diseases of women, and one, by Dr. Hodges, on hæmatemesis in a new-born infant.

Dr. J. Phillips's paper on "Acute Non-septic Pulmonary Disorders as Complications of the Puerperium" raised various questions of great interest. The author adduced evidence to show the existence of a disease distinguishable by its signs from ordinary pneumonia, and having special relations to phlegmasia dolens, from the fact that it occurred about the same date in the puerperium, and that

phlegmasia dolens was in several cases a complication. He considered that it arose from general thrombosis of the minute pulmonary venules, produced by the same condition of the blood which is productive of phlegmasia dolens.

Some of the speakers were doubtful of the non-septic character of the cases, and perhaps the difference may really lie in our definition of septicæmia. For the same doubt occurs about phlegmasia dolens itself. Some regard it as septic, while others refuse it that title, on account of its late occurrence and its favourable prognosis. If this special pneumonia depends upon a form of microbe different from the ordinary microbe of pneumonia, and from those of any named zymotic diseases, and if the puerperal state is a necessary predisposing cause, ought we or ought we not to refuse to include it in septicæmia, because the microbe probably does not gain access through the genital canal? I think we can scarcely do so logically if we give the word septicæmia its widest meaning. For I am not myself prepared to agree with one of the speakers that septicæmia is a disease with a course and phenomena as definite as those of any other infectious disorder. Rather, it varies in degree from an evanescent febrile disturbance to the most virulent and fatal disease; and, as to its phenomena, there are the greatest varieties as to the presence or absence of peritonitis, parametritis, phlebitis, lymphangitis, and other local lesions. And, though we do not yet know enough of its bacteriology to explain it, the microbes which have been found are not of one species, but of several.

Dr. Handfield-Jones' paper on "Chorea in Pregnancy" contained the reports of two cases marked by the association of chorea with maniacal disturbance. The author regarded chorea in pregnancy as an example of disordered function; other speakers considered that the term functional disorder is in this case only an expression of our ignorance. Neither this nor any other paper has yet fully cleared up the mystery of chorea, especially as regards the relation between psychic causes and organic lesions.

In one case chorea resulted from fright at the Clerkenwell explosion. The patient died, and at the necropsy were seen those vegetations on the cardiac valves which are so generally found, even when there has been no bruit during life. How can a fright produce vegetations on the valves? or what intermediate links of causation can be imagined between them, especially when we remember that, according to one theory, the vegetations are the primary cause of the chorea? Similar considerations apply to the relation of chorea to pregnancy.

In his paper on "Cæsarean Section for Contracted Pelvis," Dr. Champneys gave a very full report of a successful operation carried out according to Sänger's method. In this operation the novelty was introduced of sterilising the patient, not by removing the ovaries, but by tying the tubes with kangaroo tendon.

Dr. Herman contributed three valuable papers, the result of extensive clinical observations: "A Contribution to the Anatomy of the Pelvic Floor," "The Changes in the Pelvic Floor which accompany Slighter Degrees of Prolapse," and a paper on "Five Cases of Puerperal Eclampsia." In the last it was shown that cases of eclampsia differ materially from each other; but the most constant feature appeared to be the diminution of the excretion of urea, though not invariably of the quantity of urine, during the period of the fits.

Two cases of reposition of an inverted uterus were recorded, one by Dr. Braxton Hicks, one by Dr. Newman. Other papers on obstetric subjects were on "Diagnosis of Placenta Prævia by Palpation," by Dr. Spencer; "Laceration of Vagina in Labour," by Dr. Matthews Duncan; and "Shall Pregnancy be terminated prematurely in Cases of Phthisis?" by Dr. W. Duncan. On gynæcological subjects we have had papers on "Chlorosis and Menstruation," by Dr. Stephenson; "Large Chylous Cyst of the Mesentery," by Dr. Rasch; "Vesico-utero-vaginal Fistula," by Dr. Cullingworth; and "Lupus of the Vulva," by Dr. Lewers.

There are other subjects attracting special interest at the present time, especially on the Continent, on which we have not had papers during the past year, but may hope for further communications in future. One of these is the operative treatment of cancer of the cervix uteri. It is generally assumed that the spread of the disease is more outward than upward; and, in view of this fact, when the subject was last discussed in our Society the general opinion was in favour of the supra-vaginal amputation rather than total extirpation of the uterus through the vagina. But this decision must be either confirmed or modified in view of more recent experience. It is known that, in some exceptional cases, extension upward to the body of the uterus is even more rapid than extension outwards, and it would be of importance to know the relative frequency of these. In Germany opinion inclines rather toward total extirpation; and Dresden, which has obtained such wonderful results in Cæsarean section, claims a mortality of only 5 per cent. after total vaginal extirpation, and a percentage of more than 25 free from recurrence after two years. On the other hand, it is contended by some that recurrence is so general after supra-vaginal amputation, and the pains of deep-seated recurrence so much greater than that of the untreated disease, that it is better to abstain from all attempts at extirpation. It would be of importance also to confirm or correct the observations of some German authorities who find the endometrium of the fundus, even when not reached by continuous extension from the cervix, yet almost invariably diseased, either by actual sarcoma or by a proliferating endometritis suggestive of commencing malignancy.

Another subject is the treatment of complete rupture of the uterus in labour. This was indeed raised during the past year by a specimen shown by Dr. Horrocks, and the opinion was expressed that abdominal section ought always to be performed, and the uterus removed by Porro's method, if the rent could not be sewn up. But removal of the uterus must add to the great shock already existing;

and, the rent being in the lower distensible segment, and often spreading into the broad ligament, it can rarely be possible completely to remove the torn portion. In connection with this subject the successful boldness of Leopold, who left iodoform gauze for a time in the peritoneal cavity, to secure apposition through pressure of the peritoneal edges which could not be sewn, is deserving of attention.

Gentlemen, I thank you heartily for the courtesy which you have shown me since I have occupied this chair, and I look forward with a confident hope to a year of yet more valuable work in our new meeting-room.

Dr. GERVIS, in proposing a resolution of thanks to the President for his address, said it was worthy alike of his genius, his reputation, and his position as President of so important a Society ; and, beyond the thanks that were due for the address, the Society was also deeply indebted to the President for the care which he had taken of its interests in the negotiations with the Royal Medical and Chirurgical Society, and for the very able manner in which he had brought them to a pleasant and satisfactory conclusion.

It was then moved by Dr. GERVIS, seconded by Dr. JOHN WILLIAMS, and carried with enthusiasm—"That the best thanks of the Society be given to Dr. Galabin for his interesting address, and that he be asked to allow it to be printed in the next volume of the 'Transactions.'"

A vote of thanks to the retiring Honorary Secretary (Dr. Percy Boulton) and the retiring Honorary Librarian (Dr. Horrocks) was moved by Dr. HERMAN, seconded by Dr. AUST LAWRENCE, and carried unanimously. In speaking on this vote Dr. WILLIAMS referred to the heavy extra duties which had been undertaken by Dr. Boulton in consequence of the negotiations with the Royal Medical and Chirurgical Society, and most ably conducted by that gentleman.

A vote of thanks to the retiring Vice-Presidents, Dr. Brodie, Dr. Cleveland, Dr. George Roper, and Dr. William Stephenson, and to the other retiring Members of Council,

Dr. W. Duncan, Dr. Handfield-Jones, Dr. Hurry, Dr. Lewers, Mr. Lowe, and Dr. John Phillips, was moved by Dr. Leith Napier. He said that however excellent the President for the time might be, it was essential that he should be wisely and efficiently supported by his officers and councillors. The work of the Vice-Presidents might not be onerous, but their positions were honourable. With regard to the four retiring Vice-Presidents, Dr. Napier felt sure that he expressed the convictions of all present in saying that four more thoroughly worthy and highly appreciated gentlemen had never served the Society. One of these gentlemen had now ceased practising his profession, after having well earned his honorable leisure. Of him Dr. Napier might say that no more enthusiastic or devoted Fellow ever belonged to the Society. For years, in the midst of a busy life, he had found it a haven of rest, and he rightly valued highly the honourable place which he occupied. The other three gentlemen were still with them professionally, and Dr. Napier trusted to seeing them occupy a yet higher position in the Society than that they had just quitted. The duties of the Council had, during the past year, been peculiarly arduous and trying. It argued well for the future of the Society that under all circumstances the most perfect harmony always existed between the Council and the general body of Fellows. While the Council lost, the Library gained, the valued services of Dr. Wm. Duncan. Dr. Napier concluded by expressing in warm terms the feeling of the Society that the resolution, although essentially and necessarily formal, was amply merited by the gentlemen to whom he had referred.

Dr. Routh had much pleasure in seconding the motion of Dr. Napier. He would not, however, make an eloquent oration like that member, but he would say that every one of these gentlemen, whether Vice-Presidents or otherwise Members of the Council, were men well known in their profession. He therefore felt they had worthily merited a vote of thanks for excellent work done in the Society.

The vote of thanks was then carried unanimously.

SPECIAL GENERAL MEETING.

MARCH 5TH, 1890.

A. L. GALABIN, M.D., President, in the Chair.

Present—40 Fellows and 1 Visitor.

Books were presented by Mr. Alban Doran, Dr. Matthews Duncan, Dr. Goodell, the Royal Medical and Chirurgical Society, the American Gynecological Society, the St. Bartholomew's Hospital Staff, and the Westminster Hospital Staff.

J. Fredk. W. Silk, M.D.Lond.; Charles Herbert Thompson, B.A., M.D.Dubl.; and C. Percival White, M.R.C.S., were admitted Fellows of the Society.

Harry St. Clair Gray, M.D. (Glasgow) was declared admitted.

The following gentlemen were elected Fellows of the Society:—William John Gow, M.D.Lond.; and A. Aylmer Orr, M.A., M.B.Oxon.

The following gentlemen were proposed for election:—Augustus W. Addinsell, M.B., C.M.Edin.; George Edward Anson, M.A., M.D.Cantab.; George Black, M.B., B.S.Lond.; Albert Ehrmann, L.R.C.P.Lond.(Southam); Charles Arthur Morris, M.A., M.B., B.C.Cantab., F.R.C.S.; Frank Fredk. Schacht, B.A., M.B.Cantab.; Hugh Smith, M.D.Lond.; and Ernest Alfred Snape, L.R.C.P.Lond.

The following additional section to Chapter XIX of the Laws was put to the meeting by the President from the Chair, and carried unanimously:

"CHAPTER XIX.—OF THE SOCIETY'S PROPERTY.—Sec. 2. —In order that the Society may in all respects conform with the provisions of the Statute 6 and 7 Vic., chap. 36, sec. 1, the Funds of the Society shall at all times be devoted to the purposes for which it was instituted, and no Dividend, Gift, Division, or Bonus in Money, shall at any time be made unto or between any of the Fellows."

It was then put by the President and carried *nem. con.* that Chapter VIII, Sec. 1, of the Laws be altered so as to read as follows:

"CHAPTER VIII.—OF THE TRUSTEES.—1. There shall be three Trustees of the Society, in whom all the Stocks, Funds, and Securities of the Society for the time being, and also any Freehold, Copyhold, or Leasehold property of the Society shall be vested upon trust, from time to time, to pay the Dividends, Interest, Rents, and Income thereof to the Treasurer of the Society for the time being, and to apply and dispose of such Stocks, Funds, Securities, Property, and Income for the benefit of the Society in such manner as shall be directed by the Council, subject to the control of General Meetings of the Society; and upon going out of office, the Trustees shall execute all necessary deeds and instruments as the Council shall require, for vesting all their interest in the funds and property of the Society in their successors in the Trust."

The Meeting then confirmed the action of the Council with regard to the terms of the Lease.

Report on Dr. Robinson's Specimen of Placenta Prævia (p. 67).

The uterus has been opened along its front wall, to which the placenta was attached. The placenta is completely detached, but it is impossible to say how much of this detachment is due to its dissection. The insertion of the placenta was probably marginal, but the condition of the specimen precludes any detailed report.

W. S. Playfair.
F. H. Champneys.
C. J. Cullingworth.

THE CHANGE IN SIZE OF THE CHEST AND ABDOMEN DURING THE LYING-IN PERIOD, AND THE EFFECT OF THE BINDER UPON THEM.

By G. Ernest Herman, M.B.Lond., F.R.C.P.,

OBSTETRIC PHYSICIAN TO THE LONDON HOSPITAL.

(Received November 7th, 1889.)

(*Abstract.*)

The author says that there are three reasons commonly given, by medical men or by the public, for the use of the "binder" during the lying-in period. (1) That it gives comfort. (2) That it counteracts the injurious effect of the sudden lowering of the intra-abdominal pressure consequent on the evacuation of the uterus. The author points out that it is not usually applied till after the time at which the lowering of pressure takes place. (3) That it keeps the waist measurement small, and so preserves the "figure" of the patient. To judge of this it is necessary to know what changes normally take place in the lying-in period. He adduces measurements made at the General Lying-in Hospital, which show that during the first ten days of the lying-in the circumference of the lower part of the chest (at the level of the ensiform cartilage, and also midway between this point and the umbilicus) diminish by rather more than an inch. This diminution is practically the same in primiparæ and multiparæ, and is not modified by age. The effect of the "binder" is ascertained by comparing different classes of patients: (1) with a binder as ordinarily applied; (2) without a binder; (3) with a binder to the continued tightness of which special attention was given. It was found that the diminution in size of the lower part of the chest is practically the same in each class. The author therefore concludes that the ordinary binder has no effect on the waist measurement of the patient;

although he does not doubt that by the use of an unyielding bandage, tightened by straps, deformity of the chest might be produced and maintained. The sole utility of the ordinary binder is as a means of comfort to the patient.

It is usual after delivery to put a "binder" round the abdomen. There are several reasons commonly accepted for this practice. One that may be given is that the binder affords the patient a comfortable sense of warmth and support. This reason is good, but does not admit of discussion, because the sole and unanswerable evidence of this effect is the patient's *ipse dixit*.

Another reason is that, unless some compression be applied, the sudden lowering of the intra-abdominal pressure which results from the emptying of the uterus may produce some injurious effect. I will not consider what these effects may be, or what evidence there is of the connection of such effects with their supposed cause, but will only point out that as the binder is not usually applied until an hour or so after the sudden diminution of pressure has taken place, it comes too late to prevent these effects—at least such effects as depend upon the suddenness of the lowering of pressure.

A third reason, which I think is the chief one in the mind of the public, and often given by medical men to their patients, is that by firm binding-up after delivery, the patient's "figure" is preserved. Conversely, we sometimes hear the blame for a patient's portliness being put upon the medical man's want of attention to the binder.

The alterations in the figure which follow repeated child-bearing, are difficult to distinguish from those which are merely the result of age : and some of them, such as the deposition of fat, and increased curvature of the spine, cannot be in the least affected by the binder. The change which the binder is presumed to modify, is the enlargement of the chest and abdomen. That the girth of the waist can be reduced by compression, is shown clearly enough by post-mortem examinations of patients accus-

tomed to lace tightly. I therefore see little reason to doubt that the waist can be reduced during the lying-in period as well as at other times. But it does not follow that any permanent or considerable alteration can be produced by the ordinary binder applied during the week or fortnight following delivery.

This communication is based upon measurements made to ascertain what change takes place in the base of the chest and the abdomen during the lying-in period, and what is the effect of the ordinary binder on these changes. The measurements have been made for me by Dr. C. Owen Fowler and Mr. G. A. Pratt, house physicians to the General Lying-in Hospital; and I am additionally indebted to Mr. Pratt for help in calculating the averages which are submitted.

The only observations of a similar kind are those of Kehrer.*

He finds the average circumference of the base of the chest in twenty virgins, aged from 20 to 30, to be 72·8 cm.; in twenty-one primigravidæ, 81·7 cm.; in twenty-one measured on the third day of lying-in, 73·9 cm. In fourteen secundigravidæ the average circumference was 80·9 cm.; on the third day of lying-in, 73·4 cm. In ten multigravidæ the average circumference was 81·4 cm.; on the third day of lying-in, 75·7 cm. The total of the whole gives the average of forty-five gravidæ 81·3 cm.; on the third day after delivery, 74·1 cm.

He found the greatest circumference of the abdomen in 113 first pregnancies to be 96·6 cm.; immediately after delivery, 86·6 cm.; in the lying-in period (I suppose on the third day, but this is not expressly stated), 82·6 cm. In seventy-five secundigravidæ, the greatest circumference was 99·3 cm; immediately after delivery, 89·1 cm.; in lying-in period, 85·6 cm. In fifty multigravidæ the greatest circumference was 100·5 cm.; immediately after delivery, 90 cm.; in the lying-in period, 85·1 cm. The average of

* 'Beiträge zur klin. und exp. Geb. und Gyn.,' 2te Band, 2te Heft, S. 207, 1884.

the whole, in pregnancy was 98·2 cm.; immediately after delivery, 88 cm.; later on, 84·1 cm. The average girth at the umbilicus he found in twenty-two virgins to be 73·5 cm.; in 113 primigravidæ, 95·1 cm.; immediately after delivery, 84·2 cm.; in the lying-in period, 80·5 cm. In seventy-five secundigravidæ it was 97·5 cm.; immediately after delivery, 85·9 cm.; in lying-in period, 83·1 cm. In fifty multigravidæ it was 98·2 cm.; immediately after delivery, 87·2 cm.; in lying-in period, 83·2 cm. The average of the whole, in pregnancy was 96·5 cm.; immediately after delivery, 85·3 cm.; in lying-in period, 81·9 cm.

In eighteen primigravidæ measured by Mr. Pratt, the circumference at the level of the ensiform cartilage averaged 30·9 in., or 78·5 cm. (Kehrer, base of chest 81·7 cm.). In eleven multigravidæ, 29·9 in., or 76 cm. (Kehrer, base of chest 81·1 cm.), it averaged midway between ensiform cartilage and umbilicus, 32·8 cm.; in eighteen primigravidæ, 32·8 in., or 83·4 cm.; in eleven multigravidæ, 32·5 in., or 82·5 cm. Kehrer gives no measurements at this point. At umbilicus, in eighteen primigravidæ, the average was 35·2 in., or 89·5 cm. (Kehrer 95·1 cm.). In eleven multigravidæ the average was 33·7 in., or 85·5 cm. (Kehrer 97·7).

In fifty-eight primiparæ the average circumference at the ensiform cartilage on the day following delivery was 29·2 in., or 74·2 cm. (Kehrer, third day 73·9 cm.).

In seventy multiparæ the average circumference at the ensiform cartilage was 29·27 in., or 74·4 cm. (Kehrer, third day, 74·3).

In fifty-eight primiparæ the average circumference midway between the ensiform cartilage and the umbilicus on the day following delivery was 29·3 in., or 74·4 cm. In seventy-one multiparæ the average was 30·6 in., or 77·3 cm.

In fifty-seven primiparæ the average circumference at the umbilicus on the day following delivery was 30·64 in., or 77·8 cm. (Kehrer 84·2 cm.). In sixty-seven multiparæ it was 31·16 in., or 79·2 cm. (Kehrer 86·4 cm.).

Kehrer's measurements mostly show larger dimensions than those of Mr. Pratt. This may be due to racial peculiarities in the patients, but I think that the factor which is probably paramount in explaining the difference is that Kehrer's patients came from a small town and its rural neighbourhood, while Mr. Pratt's had many of them been brought up in the poorer parts of London.

During the lying-in period these measurements diminish. The following figures show the average lessening in 129 patients.

	After delivery.	After first week.	Diminution.
At level of ensiform cartilage . .	29·2	28	1·2
Midway between ensiform cartilage and umbilicus	30·39	29·13	1·26
At level of umbilicus	30·91	29·59	1·36

This diminution of the circumference of the parts bounding the abdominal cavity seems to me such as might be expected from the reduction of the volume of the abdominal contents which must accompany the involution of the uterus.

The next table exhibits the difference between primiparæ and multiparæ :

	Day after delivery.		After first week.		Diminution.	
	Primiparæ.	Multiparæ.	Primiparæ.	Multiparæ.	Primiparæ.	Multiparæ.
At level of ensiform cartilage	29·2	29·27	28·1	27·9	1·1	1·3
Midway between umbilicus and ensiform cartilage .	29·3	30·6	28·1	29·3	1·19	1·3
At level of umbilicus . .	30·6	31·16	29·4	29·8	1·2	1·3

The difference between primiparæ and multiparæ is so small as to be practically nothing. The lower measurements are rather greater in multiparæ, the average being probably raised by the greater number of fat patients in multiparæ. What little difference there is in the amount of diminution is all in the same direction, and shows a greater amount of diminution among the multiparæ.

The next table shows what difference there is due to age :

	Day after delivery.		After first week.		Diminution.	
	Under 26.	Over 25.	Under 26.	Over 25.	Under 26.	Over 25.
At level of ensiform cartilage	29·2	30	28·08	28·88	1·12	1·12
Midway between ensiform cartilage and umbilicus . .	29·2	29·8	27·6	28·6	1·6	1·2
At umbilicus	30·6	31·5	29·1	29·8	1·5	1·7

Here we find the measurements, as might be expected, rather greater among the older patients. The differences in the amount of diminution are not greater, and are not regularly distributed.

In order to ascertain what part, if any, the binder takes in producing or modifying these changes in the size of the chest and abdomen during the lying-in period, the following method was adopted.

First, a number of patients, taken without selection, were measured, as to whom no special instructions were given to the nurses. They were allowed to put on the binder in the way enjoined by the rules of the hospital. The following are the directions given to them :

"The binder should consist of huckaback towelling, thirty-six inches wide and one and a quarter yards long, doubled lengthways. Its lower edge should reach four inches below the top of the thigh-bone (great trochanter).

The free end of the binder should lie uppermost on the right side. Starting from the left flank, the binder should pass over the abdomen, round the back, and again over the abdomen, ending on the right flank, where, after it has been tightened, and all creases smoothed out, it should be securely fastened by four strong pins. The patient's skin should be guarded by the left hand beneath, and the pins inserted in the following order, beginning from below—one at the lower edge of the binder, three inches below the top of the thigh-bone, and a second a similar distance below the top of the hip-bone, both fastening the binder tightly, serving to keep it in position and preventing it from riding up. The third should hold the binder still more firmly on a level with the top of the womb; and a fourth near the upper edge of the binder, not too tightly applied, complete the series." Forty patients, to whom the binder was applied in this way, were measured.

In a second series of patients, thirty-five in number, also taken without selection, no binder at all was applied, or if a patient were discontented at its absence, a binder was put loosely round, care being taken that it should not be tight.

In a third series of cases, instructions were given that the binder should be applied as tightly as possible, and the house-surgeon at each of his visits made a point of ascertaining that it was tight, and of tightening it to the utmost of his power if it were at all loose.

These three classes of patients are denoted in the tables which follow, as those with ordinary binder, no binder, and tight binder.

In these, and in the measurements in which patients of different ages were compared, the greatest differences are between the abdominal measurements. It is in the measurements of these parts that the greatest variations may be expected to occur, not only from the varying amount of gas in the bowel, but from the looseness of the parietes, which renders it easy to make the measurement half an inch more or less without a great difference in the tight-

Patients with ordinary binder (39 *in number*).

Measurements.	After delivery.	Nine days after.	Diminution.
1. At ensiform cartilage . . .	29·6	28·5	1·1
2. Midway between ensiform cartilage and umbilicus	29·8	28·6	1·2
3. At umbilicus	31·6	29·9	1·7

Patients without binder (35 *in number*).

Measurements.	After delivery.	Nine days after.	Diminution.
1. At ensiform cartilage . . .	29·3	28·1	1·2
2. Midway between ensiform cartilage and umbilicus	29·2	28	1·2
3. At umbilicus	30·1	29·4	0·7

Patients with firm binder (43 *in number*).

Measurements.	After delivery.	Nine days after.	Diminution.
1. At ensiform cartilage . . .	28·9	27·8	1·1
2. Midway between ensiform cartilage and umbilicus	28·8	27·8	1
3. At umbilicus	29·5	29	0·5

ness of the measure. In the two circumferences, which are easy to measure and do not vary from hour to hour, the figures show that the diminution during the lying-in period was the same, whether the binder were applied firmly or loosely or not at all.

Measurements have also been made for me by Mr. Fowler and Mr. Pratt, to ascertain the extent to which the lower part of the chest could be compressed by the measuring tape. The amount of diminution practicable in the majority of cases was between 3½ and 5 inches. The maximum diminution observed was 9½ inches. (This was in a patient aged twenty-three, who measured 38½ inches round the lower chest, reducible by compression to 29.) The amount of diminution is so much influenced by the extent to which the patient lends herself to it by relaxing the muscles which expand the chest, and also by the amount of pulling, that I do not think the compilation of averages from these figures will yield results of value.

The general conclusion that I come to is this: That considered as a means of keeping the waist small, a binder of the ordinary kind has not the slightest effect.

I do not question the comfort it affords the patient, nor argue against its use as a means of giving comfort.

I do not doubt that by the persistent use of an unyielding belt, which can be pulled tight and kept tight by straps and buckles, the base of the chest may be compressed during the lying-in period as well as at other times, and that by the sufficiently prolonged use of such appliances permanent deformity of the chest may be induced, or deformity present before pregnancy maintained.

Dr. Gervis said that he had not found that patients desired a belt from any idea that it could influence the size of the waist. They wished for a belt because of the support which it gave to the lower abdomen and for its effect in checking any future tendency to undue fulness. He certainly thought also that, if the belt were adjusted at the beginning of labour and tightened from time to time during its progress, it had a distinct influence

in promoting uterine action and lessening any tendency to subsequent hæmorrhage.

Dr. CHAMPNEYS said he was unable to agree with Dr. Herman's conclusion that the only use of the binder was the comfort of the patient, unless the word comfort were allowed a very wide scope. The uses of the binder were best exemplified by the occasional consequences of its absence,—in a word "pendulous belly." Pendulous belly was not a mere æsthetic defect, but a condition associated with serious loss of health, and with distressing symptoms, such as constipation, pain in the abdomen, and other things, and he believed that the pendulous belly was the cause of the symptoms and not merely an effect due to a cause common to both. The use of a binder was to keep the abdominal walls in a favourable condition and position during the involution which they, in common with other structures hypertrophied during pregnancy, should undergo during the lying-in period. The soft parts of the pelvis underwent similar hypertrophy and similar involution, and, in their case, the recumbent position allowed them to undergo this in a proper position, while the action of gravity (too early getting up) interfered with this action and promoted descent. As regarded the "figure," that, no doubt, meant one thing in the case of a woman whose reputation depended upon her being able to get into seventeen-inch stays, and another thing in the case of a sensible doctor. The latter probably meant a well-braced abdomen. With regard to the compression of the hypochondria, Dr. Champneys was glad to hear that this could not be brought about by the binder, but he thought that a binder should not extend so high as to compress the hypochondria. Binders were not commonly used in Germany, and, in his experience, English hospital patients recovered with better figures than German women, while private patients who had experienced English and German customs preferred the former. He quite agreed with Dr. Herman that the binder did not prevent flooding; the uterus, if inclined to relax, disregarded the binder.

Dr. BRAXTON HICKS referred to a paper published in the 'Proceedings of the Medical Society' some few years since, under the head of Variations of Abdominal Tension, in which the question of the binder had been alluded to, and other points fully discussed. But he could not thoroughly endorse the statements of the previous speakers in regard to the uselessness of the binder on the base of thorax. It was clear, from the facts collected by the author, that the base of the thorax was expanded by the pregnant uterus. This being so after delivery, the abdominal walls were unable by so much as they were elevated to apply their pressure on the abdominal contents—blood therefore flowed into the abdominal cavity, ready to flow into the uterine cavity should the walls of this organ become atonic. Dr. Hicks com-

pared the state of the thorax after delivery to that after expansion by very large ovarian cysts, where, after tapping, the base of the thorax was so expanded that, until a firm strap had been applied around the patient, she was unable to breathe or cough. He thought that if the thorax were brought to its natural size by a slight bandage, it would be beneficial.

Mr. ALBAN DORAN remarked that Dr. Herman had not defined what was precisely understood by the term "waist." In the days of Queen Elizabeth the waist of the dress was as low as the hips, the body being joined to the skirt almost along the line of the crural arch. At the beginning of this century the waist lay nearly as high as the axillæ. What women really and naturally objected to, after child-bearing, was enlargement of the abdomen which looked unsightly wherever fashion might place the "waist." A pendulous abdomen suggested mature years; moreover, it gave rise to much physical discomfort.

Dr. HERMAN said that his statements only applied to the binder in ordinary use, put on, as was usual, after labour, and not to the abdominal bandage as an adjuvant to labour. By "waist" he understood the smallest circumference of the trunk, and this he thought in the present style of dress lay usually over the lower ribs. Although attaching weight to Dr. Champneys's impression as to the greater frequency of pendulous belly in German women, yet he did not think that it had been proved, or was absolutely certain, that this greater frequency did exist. If it did, it might be accounted for by other conditions beside the absence of the binder. Women were commonly discharged from German lying-in hospitals sooner than they were in this country, and possibly resumed their household duties sooner. He could not see how, while the patient was lying in bed, there could be much strain on the abdominal muscles either from gravity or any other cause; and it was while the patient lay in bed that the binder was worn. He could have understood the effect of a belt worn after the patient got up in preventing pendulous belly; but that was not here under consideration. His figures showed that the binder had no appreciable effect in the abdominal measurement. It was not his wish to dissuade anyone from using the binder. Dr. Herman believed that the comfort that it gave was a sufficient reason for using it. But the binder was not necessary, and was not a safeguard against any subsequent trouble; and he thought that medical men might be guided as to its use entirely by the wishes of their patients.

Dr. CHAMPNEYS said that he had not alluded to gravity except in regard to the pelvic organs.

APOPLEXY OF THE OVARY; CYSTIC DILATATION WITHOUT RUPTURE.

By Alban Doran.

SURGEON TO THE SAMARITAN FREE HOSPITAL.

(Received November 21st, 1889.)

(*Abstract.*)

The patient was 34 years old, and had borne eight children. The abdomen was unusually distended during her seventh pregnancy (1886). It remained large till the conclusion, at term, of her eighth pregnancy in the summer of 1888. The abdominal distention continued. In April, 1889, she was suddenly attacked with severe pain over the right side of the abdomen. Four weeks later the abdomen was found distended by a globose, elastic and freely moveable tumour, which pressed downwards into Douglas's pouch. Early in September the tumour suddenly diminished in size, sinking into the pelvis. On October 23rd Mr. Knowsley Thornton operated. The tumour was removed; it proved to be the right ovary converted into an oval body, two and a half inches in its longest diameter, and with an irregular surface of a uniform dull drab colour. The uterus and left ovary, the abdominal viscera, and the peritoneum showed no signs of disease old or recent. The ovary formed a cyst filled with a yellow mass, which was found to be old clot. A large, well-formed corpus luteum opened out into the cavity containing the clot. The cyst-wall, one eighth of an inch thick, consisted of normal ovarian tissue bearing a few follicles. The patient made a good recovery. The attack of pain in April, 1889, probably represented the rupture of a mature follicle into the stroma. The ovary then gradually distended till the hæmorrhage ceased, and diminished in bulk as the clot contracted.

The varieties of apoplexy of the ovary are described. This case is an example, not of hæmorrhage confined to the cavity of a dilated follicle, nor of hæmorrhage originating in the stroma, but of hæmorrhage into the stroma through rupture of a follicle.

Mrs. C. C—, aged 34, a healthy-looking woman, short in stature and inclined to corpulence, was admitted into Mr. Knowsley Thornton's wards in the Samaritan Free Hospital, in October, 1889.

She had been married for seventeen years and borne eight children, the youngest was over fourteen months old. The catamenia appeared at fourteen if not earlier, and continued regular except during pregnancy and lactation. In the course of her seventh pregnancy, in 1886, the abdomen grew unusually large, but she suffered no pain. On September 9th, in that year, she gave birth to a very large child and a "false conception" also came away, according to her doctor's statment. On recovery she felt quite well, but observed that the abdomen was almost as distended as when pregnant at full term. One year and ten months later the patient gave birth to a smaller child (her eighth). Throughout this pregnancy she was never as swollen as in 1886. After delivery, the abdomen remained distended. In April, 1889, she was suddenly attacked with severe pain in the right side of the abdomen, and called in a practitioner. At the end of May she consulted Mr. F. W. Morison, stating her belief that she had a tumour and was as big as at term. The size of her abdomen prevented her from doing her household duties and defæcation was painful.

On examination, the abdomen was found distended as at about the seventh month. The umbilicus protruded. The hypogastric and umbilical regions were occupied by a globose, elastic and freely moveable tumour, dull on percussion and "distinctly fluctuating." The right flank was resonant, the left dull on percussion. The cervix uteri was high in the pelvis and pushed forwards. The posterior fornix was occupied by a round, elastic swelling,

convex towards the vagina and continuous with the abdominal tumour.

Early in June the patient was taken to the Samaritan Hospital, where Dr. Amand Routh and Mr. Thornton examined her. Ovarian cystoma was suspected. She returned home, to await her turn for admission into the hospital. At the beginning of September she informed Mr. Morison that a few days previously she discovered, on getting out of bed, that her abdomen had suddenly diminished in size. Mr. Morison examined her, and found that the abdominal tumour had quite disappeared; resonance was universal within its normal limits, and the abdominal walls were flaccid. On vaginal examination, a mass the size of a billiard-ball was felt high up in the region of the right broad ligament. This mass was not tender to touch, and caused no pain. The patient's health steadily improved.

The patient was admitted in October, just six months after the sudden attack of pain which, as the sequel will show, probably represented the beginning of her illness. The clinical history was complicated, yet most important in relation to the pathology of the case. Fortunately, Mr. Morison preserved the notes which he took during the progress of the patient's illness, and kindly sent me a copy, of which I have availed myself in the above report. The remainder of the case came under my own observation.

On admission the patient's abdomen was found to be distended by fat in the parietes and by flatus, but no tumour could be detected. There was tenderness over the iliac fossæ. The os uteri was large and flabby, the sound passed in for two and a half inches. On the right side and in front was a mass "the size of a small orange," freely moveable and tender. The last period began on September 23rd, 1889.

Mr. Thornton operated on October 23rd, and I had the advantage of assisting him, so that I was enabled to note the relations of the tumour and the condition of the parts exposed. An incision three and a half inches in length

was made through fat parietes. An oval body was at once drawn out of the incision without any difficulty, as there were no adhesions. This body had a singular appearance, somewhat resembling a boiled suet dumpling, and at first was suspected to be a pedunculated subperitoneal fibromyoma, but its pedicle was found to consist of the right Fallopian tube and broad ligament. The uterus was large and soft. The left ovary was healthy and succulent, and contained a large ripe follicle; it was not removed. The parietal and visceral peritoneum appeared perfectly normal. The patient made a good recovery.

The tumour consisted of the right ovary. It weighed two ounces, and measured two inches and a half in vertical diameter, and one inch and five-eighths horizontally. The surface was of a dull drab colour, and puckered so as to present convolutions like the brain of one of the lower mammalia. This appearance is not rare in the big succulent ovaries of healthy young married women. When cut across, the interior was found to consist of a spongy lemon-coloured substance, the ovarian tissue forming a cortex one-eighth of an inch thick. The cavity containing the substance bore a translucent lining membrane; at the uppermost part, nearest the attachment of the broad ligament, was a thick piece of membrane forming zigzag folds, evidently the remains of a large corpus luteum. The appearance of the interior of the ovary, as seen when the specimen was fresh, is well represented by Mr. Lewin's coloured drawing.

The broad ligament bore an accessory fimbria on a long pedicle, which had become separated from the Fallopian tube. Two Graafian follicles projected from the surface of the ovary near the attachment of the broad ligament. Both were much dilated. One, half an inch in diameter, contained altered, almost decolourised clot; the other, one-third of an inch in diameter, contained white, slightly glairy fluid.

After the coloured drawing of the specimen had been taken, the two halves made by a section to expose the

L.ewin. fecit. West Newman chrom. lith.

APOPLEXY OF THE OVARY
CYSTIC DILATATION WITHOUT RUPTURE.

Showing the right ovary with its interior exposed by section. The ovary is reduced to a cavity containing a yellow mass of decolourised clot. The remains of the follicle whence the haemorrhage originally proceeded appear as a folded membrane opening out upon the upper part of the clot. A pedunculated accessory tubal fimbria hangs from the broad ligament. Natural size.

interior of the ovary were placed for a few days in a weak solution of spirit. At the end of that period I found an opportunity of examining the specimen more minutely. A large, single-chambered cavity occupied the interior of the ovary. It was filled with the tough yellow substance already described. The membrane in zigzag folds was deficient towards the yellow substance, so that it partially enclosed a space (resembling in all respects the cavity of a well-formed corpus luteum) which, where not bounded by the membrane, opened out against the yellow substance. On removing the substance from the cavity in which it was embedded in one of the half-sections, the space partially enclosed by the zigzag membrane was found to open out into that cavity. The above appearances indicated the rupture of a mature follicle into the stroma, with subsequent hæmorrhage.

The lining membrane of the cavity which contained the yellow substance, translucent when fresh, became opaque after the immersion in spirit. The membrane was soft and homogeneous; it was apparently half-organised fibrine. Mr. Targett carefully examined the yellow substance, and found that it consisted solely of clot, with no appearance of organization. The general appearance of the diseased ovary and the relations of the corpus luteum to the cavity indicated a pathological condition which bore no relation to incipient cystoma of the organ.

No rent nor cicatrix of a rent, nor any aperture nor fistulous track could be detected on the surface of the ovary. The two dilated follicles bore no cicatrices.

The appearances above described render an explanation of the clinical symptoms simple. I attach but little importance to the history of the patient's seventh and eighth pregnancies. The sudden attack of pain in April, 1889, indicated the rupture of a mature follicle into the ovarian stroma. The consequent distention of the ovary would necessarily entail much suffering. Through some obscure cause, probably morbid softening of the stroma, hæmorrhage took place and continued for some time un-

checked. The ovary became swollen so as to form a tumour apparently the size of a fœtal head.* The surface of the ovary failed to burst, the hæmorrhage ceased, and therefore the distention ceased. A coagulum formed within the ovary and contracted, so that the pain disappeared and the swollen organ steadily became smaller.

Thus the appearance of a tumour in May, 1889, some time after the attack of pain, is readily explained. The tumour was the ovary. It could not very well have been blood-clot free in the peritoneum. Rupture of the right ovary seems out of the question in this case, and hæmorrhage from a burst follicle in the left ovary may be set aside. Free bleeding into the peritoneum would have caused faintness rather than severe pain; but the patient laid stress on the severity of the pain in April, and does not appear to have felt faint. At the operation the peritoneum showed no abnormal appearances of any kind. Had the tumour, detected in May, consisted of a large circumscribed collection of blood in the peritoneum, some trace of the effused blood would certainly have been found during the operation in October. There remains no other explanation of the tumour which appeared in the spring of 1889.

The specimen illustrates the condition known to pathologists by the convenient name "apoplexy of the ovary." Authorities so high as Bernutz and Goupil have already justified the use of that term. They speak of a hæmorrhagic softening which resembles a similar condition preceding cerebral apoplexy. The term "apoplexy" is generally intended to imply rupture of the ovary through the hæmorrhage, but Winckel, one of the latest writers on the subject, applies the term, in his 'Diseases of Women,' to the earliest or mildest forms of the condition in question. "The hyperæmia of the ovaries which accompanies menstrual congestion may be so greatly increased by external causes that not rarely a follicular hæmorrhage as large as

* The abdominal walls were fat, so that the tumour probably felt larger than it really was.

a cherry may be found in the ovary. This *apoplexy* may affect a number of follicles simultaneously."*

Ovarian apoplexy with rupture necessarily involves hæmatocele. It is a rare and very fatal condition. Dr. Matthews Duncan informs me, "I have seen a fatal case of burst ovarian cyst, no bigger than an orange. It never came to a formed hæmatocele, as the woman was found dead or just dying. Hæmorrhage evidently made it burst." The "cyst" was apparently of the same character as in the present specimen.† Bernutz and Goupil‡ describe several cases of ovarian apoplexy with rupture, but the clinical reports (repeatedly quoted by British and American writers from those two authorities) are second-hand, and suffer seriously from want of diagrams. These remarks especially apply to Puech's case, which occurred in days when not only the pathology, but also the anatomy of the ovary were very imperfectly understood. Indeed, Bernutz and Goupil display a wholesome scepticism on some of the pathological reports which they publish. In all the cases which they quote, however, there was clearly rupture of the ovary from hæmorrhage.

Ovarian apoplexy without rupture, as in the present specimen, has been well described by Winckel and

* Since this paper was written my attention has been turned to a good summary of the whole subject of ovarian hæmorrhage by Dr. F. Rollin ('Hémorrhagies des Ovaires,' Paris, Steinheil, 1889).

† See also a case recorded by Dr. W. Brown, of Melrose, where a woman, aged 26, died suddenly on the eve of her marriage. The hæmorrhage was traced to the left ovary, which was "nearly the size of a turkey's egg" ('Edin. Med. Journ.,' vol. i, 1855–6, p. 852). Still more interesting, in relation to the present case, is Dr. Alexander Thomson's "Note of a Case of Rupture of the Ovary following Abortion" (ibid., vol. iv, 1858–9, p. 504). The patient was forty years old, and aborted at the second month. Three weeks later symptoms of intra-peritoneal hæmorrhage occurred and proved fatal. "The right ovary was found to have sustained a linear rupture throughout its entire length. The ovary was not increased in length, and its texture appeared healthy, with the exception of slight induration at one extremity."

‡ "Clinical Memoirs on the Diseases of Women," Dr. Meadows' translation, New Sydenham Society, 1866, vol. i, p. 180.

Olshausen. The former has observed great distention of the follicles from effused blood without "any extravasation of blood into the stroma" in three subjects after death from petroleum-burns; in two after phosphorus poisoning; in three after typhoid fever; in one after cerebral apoplexy; one after tuberculosis; and one after death from cardiac disease.

Olshausen, in his excellent 'Krankheiten der Ovarien,' divides ovarian apoplexy into two varieties, hæmorrhage into the follicles and hæmorrhage into the stroma. In pure examples of the second variety, which follow local congestion and are seen as complications of scurvy, typhoid and other fevers, the stroma becomes converted into a spongy substance full of fluid blood, resembling the spleen.

The present specimen, as proved by the appearances which I have above described, is an example of ovarian apoplexy originating in a follicle, but involving the stroma through rupture of the follicle. Olshausen, who recognises this secondary form of hæmorrhage into the stroma, describes an apparently similar case. "Whilst small apoplexies disappear, as a rule, through reabsorption, and leave no trace behind, large effusions may lead to the partial or complete destruction of the parenchyma,* involving in the latter case the conversion of the ovary into a single cyst, filled with a thick, greasy mass. In the course of a necropsy I recently came across this condition by accident. The ovary, lying in its natural position, was about three times its normal size. The outer wall was thick, no trace of the stroma remained, and the contents formed a very thick, greasy, brownish-yellow mass."

Hæmorrhage into the follicles, Olshausen's first variety of ovarian apoplexy, must often be overlooked. Unless every follicle be involved, it is hard to believe that it necessarily destroys the functions of the ovary. Hæmor-

* Olshausen does not state whether this is caused by pressure of the blood within an unruptured follicle, or by extravasation into the stroma, as in the present case.

rhage into the stroma is more serious, and may end in rupture of the organ. The present specimen represents, therefore, a relatively mild and secondary type of that variety of apoplexy; yet at an early stage of the case rupture of the ovary must have been imminent. Ovarian apoplexy is undoubtedly one of the changes (if not the principal change) which destroys the functions of the ovaries during attacks of certain acute diseases already specified.

Dr. Amand Routh could not agree with Mr. Doran's explanation of this case. In May, 1889, the tumour was a fluctuating cyst, reaching, as bimanual palpation plainly indicated, from Douglas's pouch to the umbilicus. In September it suddenly diminished in size; and when he saw her again, early in October, only a hard body the size of a small orange could be felt. It was difficult to believe that the cyst was at its origin entirely of the nature of an apoplectic ovary, or that if it had been an ordinary ovarian cyst it could have undergone spontaneous resolution. He believed that the history indicated that the original tumour was an ovarian or broad ligament cyst which ruptured in September, and that the changes described by Mr. Doran as having occurred in the ovary took place subsequently to that date.

Dr. Horrocks thought that the term apoplexy was good, although etymologically indefensible. But its meaning should be analogous to that implied when used for other regions. Hence it ought not to be confined to those cases in which the surface of the ovary was ruptured, but should mean hæmorrhage into a Graafian follicle, or into the stroma of the ovary with or without rupture of the surface. Mr. Alban Doran had drawn attention to the great pain attending this case, and had explained it by the distention of the organ. This was probably correct, but Dr. Horrocks pointed out that pain in the ovarian region did not necessarily mean ovaritis, as some physicians seemed to think. Indeed, in other viscera it was generally the capsule that was affected when pain was a prominent symptom, whilst inflammation of the substance of the organ was painless or nearly so. He mentioned pleurisy and pneumonia, meningitis and cerebritis, perihepatitis and hepatitis as examples. He thought that apoplexy of the ovary was not so uncommon as might be supposed from examinations in the dead body.

Dr. Cullingworth was sorry that the term "hæmatoma" had not been used instead of "apoplexy." The former, being already employed in the case of hæmorrhages into the connec-

tive tissue of the broad ligament, was perfectly familiar, and open to less objection on many grounds. He did not think that the author's explanation of the clinical phenomena was altogether convincing. The sudden diminution in size of so large a tumour seemed to point to rupture rather than to gradual absorption within the tumour itself. That no sign of such rupture existed either in the walls of the tumour or in the peritoneal cavity did not disprove it. The extravasated fluid might have been of a simple serous nature, such as would easily undergo absorption. With regard to the changes that the author alluded to as taking place in the ovary after hæmorrhage into its parenchyma, he (Dr. Cullingworth) had lately met with such an instance as had been described in the case of a young woman of twenty-three, upon whom abdominal section was performed in December last for a parovarian cyst of the right side. When, in the ordinary routine, the appendages of the other side came to be examined, the ovary could not at first be found. It was eventually discovered completely wrapped up in, and adherent to, omentum, a portion of which was removed, with the ovary within its folds. The ovary was represented by a mere shell containing dark brown pultaceous material, evidently altered blood. It had undergone no increase in size, but had been pulled upwards by the omentum some distance away from its normal position. The Fallopian tube and broad ligament on that side were quite healthy.

Mr. Doran, in reply, stated that small extravasations of blood into the follicles and substance of the ovaries were probably frequent. The big swellings, full of blood, not rarely seen on the surface of the ovaries of healthy young subjects were often normal, the healthy ovary and ripe follicles being much larger than was generally believed. As medical men first studied the ovary in the dissecting-room, where specimens of that organ were usually atrophied, they often carried false ideas of the ovary throughout their careers. Mr. Doran had given full reasons why the original swelling could hardly have been a "cystoma" in the precise pathological sense of the word. The diagnosis made by Dr. Amand Routh, Mr. F. W. Morison, and Mr. Thornton was clinically quite correct, for the tumour, a swollen ovary filled with blood, certainly formed a cyst. The appearances of the peritoneum and viscera at operation proved that no rupture of the ovary or of any cyst or blood-vessel could have recently taken place. Extravasation of fluid into the substance of the ovary, inflammatory or otherwise, caused great pain, as in orchitis and intra-ocular inflammation, where organs with tough capsules were involved. Dr. Cullingworth's case of a small cystic apoplectic ovary found adherent and entangled in the omentum, high above the pelvis, reminded Mr. Doran of a similar case described in his paper "On So-called Non-ovarian Dermoid

Abdominal Tumours" ('Med.-Chir. Trans.,' vol. lxxviii, 1885). This condition was akin to twisted pedicle, which sometimes caused hæmorrhage into ovarian cysts, and might be one (certainly not the sole) cause of apoplexy of an ovary free from cysts. The walls of the ovary exhibited by Mr. Doran consisted of solid ovarian tissue; they bore no resemblance to the walls of a true cystoma which had partly collapsed. "Apoplexy" was a convenient term. Perhaps "hæmorrhage into the ovary" was better; "hæmatoma" was hardly as simple.

APRIL 2ND, 1890.

ALFRED L. GALABIN, M.D., President, in the Chair.

Present—53 Fellows and 9 Visitors.

Books were presented by Mr. Alban Doran, Dr. Galabin, Dr. Minot, Mr. J. Knowsley Thornton, the American Association of Obstetricians and Gynæcologists, the St. Thomas's Hospital Staff, the publishers of the 'Medical Annual,' and La Société Obstétricale et Gynécologique de Paris.

The following gentlemen were elected Fellows of the Society:—Augustus W. Addinsell, M.B., C.M.Edin.; George Edward Anson, M.A., M.D.Cantab.; George Black, M.B., B.S.Lond.; Albert Ehrmann, L.R.C.P.Lond. (Southam); Charles Arthur Morris, M.A., M.B., B.C. Cantab., F.R.C.S.; Frank Frederick Schacht, B.A., M.B.Cantab.; Hugh Smith, M.D.Lond.; and Ernest Alfred Snape, L.R.C.P.Lond.

The following gentlemen were proposed for election:—Arthur Henry Robinson, M.D.Durh.; and Reginald Muzio Williams, M.D.Lond.

LIVING FEMALE CHILD WITH THREE LOWER LIMBS.

By Clement Godson, M.D.

Dr. Godson showed a female infant born on December 30th, 1889, in the out-patient maternity department of St. Bartholomew's Hospital. The point of interest in the case was that she possessed a third leg. At birth the vertex presented, and there was no difficulty in the delivery. The mother had borne five other children. The third was an idiot and had club-feet.

Mr. Alban Doran observed that some malformations were evident examples of dichotomy, whilst in other cases where supernumerary structures were appended to an otherwise well-formed infant, those structures represented an acardiac twin which had become attached to its brother. Dr. Godson's specimen was clearly due to the former condition; whilst to the latter (which Mr. Doran had discussed at length in a paper published in the 'Transactions,' 1889, p. 4) was due the deformity known as epignathus, where the rudiments of a fœtus were attached to the oral cavity of an otherwise well-developed child. Intermediate forms, however, existed, where classification under either of the above kinds of malformation was not so easy, especially when the relations of the cord to the fœtus and its appendage could not be ascertained.

THREE CASES OF CONGENITAL DIAPHRAGMATIC HERNIA (TWO BEING ON THE RIGHT SIDE).

By Herbert R. Spencer, M.D.

Case 1.—A male child, 21 inches long, weighing 6 lbs. 10 oz. It was externally quite perfect. The mouth, anus, urethra, and penis were normal; and the testicles lay in the scrotum. Through a hole about one inch in diameter at the

fore-part of the right side of the diaphragm a large piece of the right lobe of the liver had passed, and behind this the small intestine and the cæcum and vermiform appendix had also prolapsed. The piece of liver had assumed, roughly, the shape of the pleural cavity, and was constricted below by the smooth edge of the hernial ring. Its surface was spotted over with small blackish-red hæmorrhages, resembling Tardieu's spots on the surface of the lungs. The right lung was rudimentary and had never filled with air. The heart, thymus, and left lung were on the left side of the thorax, pushed over by the displaced viscera. The left lung was of good size and had received air. There was no sac to the hernia. The child was born naturally, and lived for three quarters of an hour.

The post-mortem examination showed congestion of the liver and of the meninges of the brain, but no hæmorrhage.

Case 2.—A large full-term still-born male child. The deformity was on the right side, as in the preceding case. It exactly resembled Case 1, except that the opening in the diaphragm was further back, and that (in addition to the small intestine, cæcum, vermiform appendix, and large piece of the right lobe of the liver) the right kidney had also passed through the aperture. There was no sac to the hernia.

Case 3.—A still-born female child 20 inches long, weighing 6¾ lbs. The diaphragm was entirely wanting on the left side. The left side of the chest was filled by small intestine, the stomach and great omentum, the spleen, a piece of the left lobe of the liver of the size of the top of the finger, and the rudimentary left lung. The œsophagus was constricted at the lower end. There was no sac to the hernia. After death, extensive meningeal hæmorrhage was found over the upper half of the cortex of both cerebral hemispheres.

CASE OF CENTRAL CHOROIDO-RETINITIS OCCURRING AFTER LABOUR AND POST-PARTUM HÆMORRHAGE.

By H. Macnaughton Jones, M.D.

Dr. Macnaughton Jones showed an ophthalmoscopic drawing (Burgess) of "central choroido-retinal" disease. The drawing was taken on March 4th, the patient having been delivered, with very severe post-partum hæmorrhage, on January 7th. The vision of the left eye on February 20th was found to be reduced to counting fingers at five feet, and reading 40 Snellen at three feet. The defect in vision appeared on the third day after labour. There was no albuminuria during or after pregnancy. There had been no previous visual defect. The vision of the right eye was normal. There were no cardiac complications. The ophthalmoscopic appearances were as follows. A constellation of white dots was scattered over the area of the macula, but not elsewhere. The macula itself was somewhat blurred in appearance, and the whole of this region was marked by greyish-red punctations, which were also scattered between it and a somewhat white papilla, with few and thin vessels. There was a black crescentic (physiological) margin of choroid at the nasal side of the papilla. There were no vessels in the region of the macula. Dr. Macnaughton Jones drew attention to the rare occurrence of this affection, the distinguishing features between it and the retinal changes in Bright's disease, its occurrence in one eye, and its association in this case with labour and hæmorrhage. The similarity of the appearances here observed to those described by Mr. Nettleship in "central guttate choroiditis" was striking. The case was, however, more exactly allied to the central choroido-retinitis of Mr. Warren Tay and Mr. Hutchinson, the latter authority surmising that these "dots" might

be of a colloid nature. The hæmorrhage had probably led to choroidal thrombosis which had caused the irritation, leading up to the retinitis and these special "dots."

UTERUS REMOVED BY PORRO'S OPERATION.

By C. J. Cullingworth, M.D.

Dr. Cullingworth exhibited the uterus from a case of Cæsarean section. After the introduction of the uterine sutures, persistent hæmorrhage from a divided sinus made it necessary to remove the uterus by the method of Prof. Porro. Both mother and child were saved.

FŒTUS AND PLACENTA FROM A CASE OF EXTRA-UTERINE GESTATION.

By C. J. Cullingworth, M.D.

Dr. Cullingworth also showed a fully developed fœtus and placenta removed the previous day, by abdominal section, from a case of extra-uterine gestation. The sac, formed by the right broad ligament, was stitched to the lower part of the abdominal incision. The operation was performed exactly four weeks after the cessation of fœtal movements. The removal of the placenta was therefore commenced cautiously, but was accomplished without serious hæmorrhage.

CANCEROUS UTERI REMOVED BY VAGINAL HYSTERECTOMY.

By C. J. Cullingworth, M.D.

Dr. Cullingworth further exhibited, in illustration of his paper read the same evening, four cancerous uteri removed by vaginal hysterectomy, and five specimens of cancer of the uterus from St. Thomas's Hospital Museum. Detailed descriptions of the former were given in the paper (p. 141), and of the latter in an appendix (p. 164).

DISEASED OVARIES AND TUBES.

By C. H. Carter, M.D.

THREE SPECIMENS SHOWING REMOVAL OF CERVIX UTERI FOR MALIGNANT DISEASE.

By Arthur H. N. Lewers, M.D.

Dr. Lewers showed specimens from three cases of supra-vaginal amputation of the cervix for malignant disease. They illustrated the class of cases in which total extirpation of the uterus offered no advantage over the supra-vaginal amputation.

In one, a specimen of crater-like ulcer (No. 4 in the series published by Dr. Lewers*), the patient remained well, and free from recurrence for nearly twelve months after the operation. Then recurrence took place in the pelvis laterally, at some distance (about one and a half inches) from the

* 'Practical Text-book of the Diseases of Women,' 2nd ed., p. 425.

stump. This, and the part of the uterus left behind, were quite unaffected by the malignant growth to the last. Obviously, in this case no good would have resulted from total extirpation. In the second specimen (No. 12 in the series) there was a cauliflower-growth, the size of half a crown, the patient was still quite well and free from recurrence at the present time, one year and ten months since the operation. In another, the third specimen (No. 16 in the series), where there was a large cauliflower-growth chiefly affecting the posterior lip, the patient was three months pregnant at the time of operation. Examination of the specimen showed that there was an ample width of healthy tissue in the direction of the uterus, much wider than the area of sound tissue laterally and towards the vagina. This patient was still free from recurrence; it was now nearly eight months since the operation.

CASE OF CANCER OF UPPER PART OF CERVIX EXTENDING INTO BODY OF UTERUS, WITH VERY LITTLE DISEASE TO BE SEEN OR FELT BY THE VAGINA; VAGINAL HYSTERECTOMY; RECOVERY; RECURRENCE OF DISEASE; DEATH THIRTEEN MONTHS AFTERWARDS.

By G. E. Herman, M.B.

E. T—, aged 46, admitted September 10th, 1887. Began to menstruate when aged twelve, always regular except during pregnancy; with pain so bad as to lay her up each month until child-bearing. Was married at seventeen; had twelve children and four miscarriages, the last six years ago. No illness until the present.

The present illness dated from eight and a half months ago. Then the patient felt a sense of weight and uneasiness in the right lower abdomen. A month later a yellow

discharge began, and it continued since, but had never been offensive, though from the beginning often tinged with blood. There was hæmorrhage for three weeks before admission; the appetite throughout was good. Bowels costive, but no pain on defæcation. Pain not severe. Patient stated that she had not got thinner. Weight 14 st. 5½ lbs.

On admission the patient was florid and well nourished. The uterus was moveable. The vaginal portion was healthy except for a ring of excavating ulceration surrounding the os externum, bleeding when touched.

September 16th.—Patient was anæsthetised, with a view of removing the cervix uteri. On careful examination some induration was found in the left lateral fornix. The operation for removal of the cervix was commenced in the usual way. In cutting into the upper part of the cervix in order to separate it from the body, it was found that the knife went into a ragged cancerous cavity, which extended up into the lower part of the body of the uterus. The cervix broke down so readily that it could not be used as a means of drawing down the body, and it was therefore separated. The body of the uterus was then removed. The broad ligaments were secured by ligatures. Iodoform was freely dusted on the parts, and an iodoform gauze plug put in the vagina.

The patient made a good recovery. The highest temperature reached was 101·8° on the evening of the third day. After the fourth day it never exceeded 100°, and after the ninth day was normal. On October 3rd, weight 13 st. 7 lbs.; January 13th, 1888, weight 14 st. 5 lbs.

The patient died on October 22nd, 1888, from recurrence of the disease; but as she was not in hospital no details of the illness, or autopsy, could be obtained.

The specimen consisted of the cervix and body of the uterus. The vaginal aspect of the cervix was healthy except that it was thickened. The os externum was triangular in shape, and not larger than a threepenny-bit, and it formed, as seen from the vaginal aspect, an excavation filled

with small warty growths. The part of the cervix that had been attached to the body of the uterus formed an irregular cavity lined with loose warty and villous growths. These growths extended to within an inch of the fundus uteri. In the cervix only a very small band of healthy tissue bounded the growth peripherally. The body of the uterus was enlarged, its wall being nearly an inch thick, but its cavity was not dilated, and its lining membrane above the cancer did not show any microscopical changes.

The specimen was No. 2170 in the London Hospital Museum.

SARCOMATOUS UTERUS REMOVED BY VAGINAL HYSTERECTOMY.

By W. R. Dakin, M.D.

Dr. Dakin showed a uterus which he had removed seventeen days previously from a patient aged 51. She was a widow, and had not menstruated for six years. Six months ago she began to have slight hæmorrhage from the vagina, and this had steadily increased till it was profuse and very frequent, when she came to the hospital. She had no pain and hardly any discharge.

On examination the vagina was found perfectly free from growth, and the vaginal portion atrophied. The position of the os was indicated by a dimple, and the finger just entering this came on a brittle, profusely bleeding surface. The length of the whole cavity of the uterus was two and a half inches. The body was therefore somewhat enlarged. She was admitted and examined under an anæsthetic. The uterus was drawn down, the cervix curetted, and the body explored. The growth was found to extend up towards the right cornu. There was no deposit round the uterus, and the organ was very freely

moveable, being perhaps slightly held when it was attempted to draw the fundus far to the left. Dr. Dakin then decided to remove the whole uterus. All her other organs were found normal. She was douched for three days before operation twice a day with a 1—2000 solution of sublimate, the vaginal walls being rubbed with the solution.

The operation presented no difficulty: the bladder was first separated up to the utero-vesical fold of peritoneum, then Douglas's pouch opened and the broad ligaments tied in sections, the uterus being slightly pulled down. Three ligatures were put on the right side and four on the left. There were no adhesions, and the surrounding tissues were, as far as could be judged, normal. This took fifty minutes, but after it was all done and the patient was just going to be removed, she began to bleed profusely, the blood coming from somewhere high up in the left broad ligament. Some time was spent in looking for the vessel, but as it could not be found, and the patient was losing considerably, the pelvis was plugged with several yards of iodoformed carbolic gauze. This was removed in forty-eight hours and was then quite sweet. No further bleeding occurred. She rallied well, and the temperature did not rise to 100° until the fifth day, when it was brought down by an enema. The ligatures which had been left long were cut to about three inches on the third day, and came away one by one. She needed no stimulant or special treatment, and was at the present time convalescent.

The growth was found on microscopical examination to be a spindle-celled sarcoma, commencing probably in the connective tissue of the cervix.

FOUR CASES OF VAGINAL HYSTERECTOMY.

By C. J. Cullingworth, M.D., F.R.C.P.,

OBSTETRIC PHYSICIAN TO, AND LECTURER ON OBSTETRIC MEDICINE AT, ST. THOMAS'S HOSPITAL.

(Received March 1st, 1890.)

(*Abstract.*)

Four cases of total extirpation of the uterus *per vaginam* are related, two of columnar-celled carcinoma of the cervix, and two of squamous-celled carcinoma of the portio vaginalis. In three of the cases the patients recovered from the operation; one showed recurrence in eight months. The disease had extended into the body of the uterus in both the cases of cervical carcinoma, and the author expresses a doubt whether the tissues above the internal os are respected as frequently as is alleged. Museum specimens are shown where the corpus uteri has been more or less invaded.

In the fatal case the patient had a parovarian cyst, situated behind the uterus; this was removed by abdominal section on the same day that the vaginal hysterectomy was performed. Death occurred on the third day, apparently from intestinal paralysis.

The paper concludes with some remarks on the diminished mortality of the operation as compared with what it was when Dr. W. Duncan's paper was read in 1885.

Case 1.—Mary K—, aged 46, was admitted into St. Thomas's Hospital January 7th, 1889, on account of irregular uterine hæmorrhage, which had been going on since October, 1888, accompanied with loss of flesh and pain in the left iliac region and over the sacrum.

The patient was married at the age of twenty-one, and has had thirteen children at term and five premature births, one at three months and a half, the others at from four to five months. The last child was born in October, 1886. On that occasion the patient had post-partum hæmorrhage. For the last four years menstruation has been profuse. There has been no purulent or offensive discharge. The blood lost during the past three months has been of varying quantity and of a bright red colour, the discharge never ceasing entirely.

The uterus was normally anteflexed and freely moveable. Body slightly enlarged; cervix much enlarged and indurated; os fissured. Length of uterine canal three inches. No thickening of broad ligaments detected.

On February 5th, the hæmorrhage having continued more or less in spite of the rest, the patient was carefully examined under ether. On the posterior lip of the cervix a suspicious-looking, irregular, dusky-red patch was seen, raised slightly above the surrounding surface. It was about an inch in its longer diameter and half an inch in its shorter, and extended up into the cervical canal. There was a similar but smaller patch on the anterior lip. The diseased surfaces bled on the slightest touch. The cervix generally was indurated. A small portion of the diseased posterior lip was removed for microscopical examination.

On February 7th, Mr. Shattock reported that the specimen proved, under the microscope, to be typical glandular carcinoma.

The question of removal of the entire uterus was therefore considered and fully explained to the patient. The patient herself was willing to have the operation performed, but as her husband would not give his consent, she left the hospital on February 16th.

On March 4th she was readmitted for operation, her husband having now consented that it should be done.

The operation of total extirpation through the vagina

was accordingly performed on March 8th, ether being administered by Mr. White. The vaginal orifice was large, the vagina itself roomy, and its walls lax. The uterus was normally anteflexed and freely moveable, but the projection of the cervix into the vagina was exceedingly slight, not exceeding a fraction of an inch. The anterior lip was seized and drawn down, and the mucous membrane in front divided. This was no sooner done than the tissues of the cervix gave way and the volsella lost its hold. The separation of the bladder was accomplished with a good deal of difficulty. The posterior incision was then made just above the posterior lip, and, two fingers being placed meantime in the rectum, the uterus was separated by the finger from its posterior attachments. The peritoneum came into view and was incised with the point of a scalpel, the opening being afterwards enlarged by means of the fingers. The anterior and posterior incisions were now connected by lateral incisions through the mucous membrane of the vagina, and the vesico-uterine fold of peritoneum was divided. (An attempt to pass two fingers, from behind, over the fundus, to serve as a guide in dividing the peritoneum in front, was frustrated by the fingers becoming entangled in a mass of loose tissue. This afterwards proved to be omentum adherent to the fundus uteri.) The bladder was now once more carefully explored with the bladder-sound and found to be uninjured. The base of the broad ligament on each side was then exposed by dissecting off the vaginal mucous membrane, and a stout silk ligature was passed completely through the upper part of the cervix, from before backwards, in the middle line, to enable the uterus to be drawn down. Passing a finger behind the base of the left broad ligament and the thumb in front of it, an aneurysm needle was passed through the lower part of the broad ligament, at a short distance from the side of the uterus, and threaded with a double silk ligature. The ligature was divided so that two ligatures passed through the same opening. Half a knot was made

on one and the ends held tight, while a full knot was tied on the other. The first knot was then completed, and the uterus separated with scissors from its lateral connections and divided up to the level of the ligature. Similar ligatures were applied to the middle section, and finally the upper border of the broad ligament was hooked down by the finger, and the uppermost section of the broad ligament, including the Fallopian tube, was ligatured. By dividing the tissues as close to the uterus as possible, with scissors, the uterus was set entirely free on that side. No hæmorrhage took place from the broad ligament. The body of the uterus was now seized and pulled down sideways so as to enable the right broad ligament to be brought into view and tied from above downwards. A band of the great omentum, adherent to the fundus uteri, was tied and divided, and the omentum pushed up into the abdomen. When this had been done and the right broad ligament divided, the uterus was free and was removed. The tubes and ovaries were examined, found healthy, and left. The omentum now prolapsed. Again and again, after being pushed up, it came down. It was therefore held up while the vagina was packed with two long strips of iodoform gauze, the packing reaching for a little distance within the peritoneal cavity. The ligatures on the broad ligament were left long, a piece of india-rubber tubing being slipped over each bundle outside the vulva. No attempt was made to bring together the edges of either the vaginal or peritoneal wound. Very little blood was lost during the operation, which lasted two hours and a quarter. Pads of wool, squeezed out of a solution of corrosive sublimate, 1 in 1000, were used instead of sponges. No douching was employed either during or after the operation. A wood-wool pad was applied externally. There were no symptoms of shock during the operation.

For the first day or two the patient was sick at intervals, and in spite of a small dose of morphia subcutaneously she slept badly the night after the operation. The cathe-

ter was passed every six hours. Temperature on the 9th, 98·8° to 100·8°; on the 10th, 99·6° to 101°.

The iodoform gauze was removed for the first time on the morning of the 11th, sixty-six hours after the operation; it was saturated with blood and blood-stained serum, but quite free from disagreeable odour.

It was replaced by a single strip, which was not carried beyond the vaginal wound, but simply packed loosely in the vagina. The india-rubber sheaths were removed from the ligatures, which were now simply tied in two bundles. It was thought the india-rubber tubing might harbour discharges and interfere with the drainage-action of the ligatures. The change of dressing was followed by an attack of vomiting, and by acute pain, which passed off, however, in the course of an hour or two. Later in the day the patient passed urine voluntarily for the first time since the operation. Temperature on the 11th varied from 99° to 102°.

Next day (March 12th) the patient was very comfortable and quite free from pain. Temp. 99° to 100°. No sickness.

15th.—Discharge purulent and offensive. Gauze tampon discontinued. Bowels have acted slightly. No pain. Not much desire for food. Ordered a fowl for dinner.

17th.—Discharge more profuse and blood-stained. Patient quite comfortable. Temperature, 13th to 17th, varied from 98·4° to 100·4°.

21st (fourteenth day from operation).—All the ligatures on the left side, and all except two on the right, being loose, were removed; a small portion of sloughing tissue came away with the ligatures on the left side. The removal was nearly painless. Patient complains of a pricking pain during micturition, but is otherwise very comfortable.

24th.—The two remaining ligatures have not yet become loose; traction on them causes considerable pain. The central part of the vaginal wound has united; at each

angle there is a small aperture, not large enough to admit the tip of the finger. Temperature, 18th to 24th, 98·2° to 99·8°.

From this date the temperature was normal. The patient left her bed on the 30th, and on April 15th she was sent to the Convalescent Home at Eastbourne. One of the remaining ligatures was still firmly held, the other had come away on April 9th.

She presented herself at the hospital on her return from Eastbourne, looking very well. The opening at the left angle of the wound had not yet become entirely closed, and there was a little purulent discharge quite free from odour.

For six months after the operation the patient gained flesh; after that she began to lose ground.

At the beginning of November (eight months after the operation) there was noticed for the first time a small bud of soft growth at the left angle of the wound, which had never entirely healed. There had been no hæmorrhage.

On December 14th the growth had increased to the size of a hazel-nut, and patient complained of a little pain on the left side of the pelvis and some irritability of bladder. The discharge had been slightly blood-stained for the past three days.

February 8th, 1890.—Growth not perceptibly increased in size. No hæmorrhage since last note. Very slight watery discharge, without ill odour. Frequency of micturition continues, and there is pain before and after relieving the bladder. There is continuous pain deep in the pelvis on the left side.

The uterus was handed over to Mr. Shattock immediately after its removal. A large portion of the cervix had, owing to its friability, been broken away during the operation, so that the specimen consisted of the body and adjoining portion of the cervix. It was at once placed in hardening fluid, with a view to careful microscopical examination. The following is Mr. Shattock's report:—

"The specimen shows that the morbid growth extends one centimetre ($\frac{2}{5}$ in.) into the substance of the posterior wall of the uterus, above the level of the internal os. The lower surface of the parts removed is exceedingly irregular, owing to the breaking away of the greater part of the diseased cervix at the operation. In front, the growth infiltrates the entire thickness of muscular tissue, but the peritoneum is separable and uninvolved. The same is true of the posterior wall. The section made at the operation through the broad ligament shows no extension of the growth in the divided surface. The connective tissue at the side of the cervix has, however, undergone infiltration.

"The length of the cavity of the corpus uteri is an inch and a half.

"*Histology.*—Section shows branching columns of epithelium invading the muscular tissue. The columns have no lumen, and are composed of closely packed cells, having oval nuclei arranged vertically to the subjacent surface (columnar-celled carcinoma)."

I defer my remarks on this case until the latter part of the paper.

Case 2.—Emma F—, aged 35, married, was admitted into St. Thomas's Hospital April 23rd, 1889, suffering from a cystic tumour of the right broad ligament and ulcerating carcinoma of the vaginal portion of the cervix uteri.

The patient had been married thirteen years, and had not been pregnant. Always had good health and menstruated regularly until sixteen weeks before admission, when a hæmorrhage commenced which had continued ever since. For the last month there had been an offensive discharge, loss of appetite, and some loss of flesh.

Patient was a strongly built, healthy-looking woman.

The anterior lip of the cervix uteri presented an uneven, granular, easily bleeding and flattened-out surface of ulceration, with hard, everted edges. Behind the posterior lip there was a deep groove of ulceration running from side

to side, dividing it, as it were, into two irregular flaps. The uterus was freely moveable, and no infiltration could be detected around it. The disease had not extended on to the vaginal wall anteriorly and not further than the vaginal reflection posteriorly. Behind the uterus, and springing from the right side, was a smooth cystic tumour, occupying the hollow of the sacrum.

The organs of the chest were healthy. The urine contained albumen (about $\frac{1}{20}$) ; sp. gr. 1014.

On April 25th abdominal section was performed, and a cyst of the broad ligament, measuring 5 in. by 5½ in., was removed unopened, after tying the pedicle with a single ligature. The contents were clear serum. The right ovary lay close to the tumour, and the right tube, much elongated, ran along its wall, the fimbriated end being free. The wound was closed and dressed, the operation lasting half an hour.

The patient was then placed in the lithotomy position, and the whole cervix being seized with a volsella, the entire uterus was removed *per vaginam*, the steps of the operation being the same as in the preceding case. Very little blood was lost. No sutures were inserted either in the peritoneum or vagina. The ends of the ligatures were left long, and the vagina was tamponed with iodoform gauze. A gauze bag of sublimate wood-wool was placed over the vulva. The operation occupied exactly an hour and a half.

The temporary dressing of the abdominal wound was now removed and the usual dressings applied, namely a bag of wood-wool next to the wound, and over this a large thick layer of cotton-wool, the whole being secured by a many-tailed flannel bandage.

The patient passed a fair night. At 6 a.m. next day she vomited for the first time. In the afternoon she complained of a pain in the right hypochondriac region, and her countenance assumed an anxious expression. The pulse became rapid and respiration hurried; the abdomen became somewhat distended, and vomiting supervened.

On examining the chest, the only abnormal sound detected was a double bruit internal to and on a level with the nipple. It was doubtful whether this was exocardial or endocardial.

27th.—Was sick at intervals through the night and at 5, and was much collapsed. At morning visit, patient looked a little better. The abdomen was slightly distended. The mouth was dry and thirst was complained of. The discharge from the vagina since the operation had been chiefly serum—only slightly blood-stained. The tampon was easily removed this morning, and no further internal dressing was applied.

In the afternoon the patient vomited about 12 fluid ounces of black fluid. The abdomen became more distended and the pulse more rapid and feeble.

Being unable to account for my patient's alarming condition, and revolving in my mind every possible cause, it suddenly occurred to me that I had omitted to ask for the sponges to be counted before closing the abdominal wound. The nurse, on being appealed to, assured me that the number was correct, but, in order to set the matter at rest, my excellent resident officer, Mr. E. C. Stabb, had the stock of sponges counted. One of the number was found to be missing. Immediately on being informed of this I proceeded to reopen the abdomen. With some difficulty the missing sponge was discovered, completely enveloped in omentum. The sponge had no ill odour, and there were no signs of peritonitis beyond that usually found in the immediate neighbourhood of the wound. The patient seemed no worse for the manipulations, but the vomiting and distension continued, and she died at 5 a.m. on the 28th, sixty-one hours after the operation.

The following is the record of the temperature, &c.

	Temp.	Pulse.	Resp.
25th, 6 p.m. ...	98·4° ...	112 ...	24
8 p.m. ...	100·4 ...	116 ...	26
Mdn. ...	99·4 ...	122 ...	26
26th, 4 a.m. ...	98·2 ...	114 ...	24

	Temp.	Pulse.	Resp.
8 a.m. ...	98·2 ...	104 ...	22
Noon ...	100·0 ...	116 ...	24
4 p.m. ...	100·4 ...	124 ...	30
8 p.m. ...	100·6 ...	134 ...	30
Mdn. ...	99·0 ...	134 ...	28
27th, 3.30 a.m. ...	99·8 ...	140 ...	40
5 a.m. ...	100·2 ...	160 ...	40
8 a.m. ...	100·6 ...	160 ...	32
Noon ...	100·6 ...	160 ...	38
4 p.m. ...	100·8 ...	170 ...	40
8 p.m. ...	100·0 ...	180 ...	42

Autopsy (at 2 p.m. on the 29th).—On opening the abdomen there was seen to be great distension of the stomach and of the whole intestinal tract from duodenum to rectum. The liver was pushed up. There was no peritonitis, except as shown by adhesions in the neighbourhood of the wound in the abdominal wall and of the omentum to itself. There was no twist or kink, or other apparent mechanical obstruction of the bowel. The wound in the vaginal roof was closed, so that no communication existed between the vaginal canal and the peritoneal cavity, except through the ligatures, which were surrounded by adhesions at their attachments to the broad ligament. There was a very little blood-stained fluid in the pelvis. There was no sign of hæmorrhage beyond a little infiltration of the connective tissue in the stump of the uppermost section of the left broad ligament. The bladder and ureters were carefully examined and found uninjured. A large and hard lymphatic gland was found beneath the peritoneum, on the lateral wall of the pelvis on each side, immediately below the pelvic brim. The left ovary and Fallopian tube were normal.

The lungs were compressed and congested, but otherwise healthy. The heart was normal, except for a patch of the size of a shilling, of recent lymph, on the anterior aspect of the visceral pericardium, and some staining of the endocardium of the left ventricle. There were patches of atheroma on the aorta.

The other organs were healthy.

Report on the Specimen.—Mr. Shattock received the uterus immediately after its removal, and has kindly furnished me with the following report of the result of his examination :—" The portio vaginalis is roughened on its outer aspect from the superficial ulceration of a carcinomatous growth, shown by the microscope to be of the squamous-celled variety. The anterior lip is considerably enlarged by the disease, which has infiltrated also the adjoining portion of the vagina. On the posterior aspect the vaginal portion of the growth is deeply ulcerated, the edges of the ulcer being infiltrated and thickened. The disease does not involve the body of the uterus. In the section of the anterior wall of the cervix the new growth nowhere extends upwards for more than half an inch. The divided edge of the vagina and the peritoneum on the posterior surface are uninvolved.

" Length of the entire uterine cavity two and a half inches.

" *Histology.*—In vertical section it is shown that there are branching columns of flat-celled epithelium invading the muscular tissue, accompanied with abundant small-celled infiltration. The ulcerated surface is formed by the breaking-down of the growth. There are many leucocytes amongst the epithelial cells of the ingrowing columns."

Remarks.—In this case it seems necessary to explain why the two operations of removal of the parovarian cyst and removal of the uterus were undertaken on the same day. The reason was this: the position of the cystic tumour behind the uterus made it desirable that it should be removed before undertaking the operation on the uterus. To have performed abdominal section and allowed the patient to recover before dealing with the uterine cancer would have involved a delay of at least two or three weeks. There being already ulceration of the diseased parts, such a delay seemed exceedingly undesirable. Hence, as the cystic tumour appeared to be of a simple character and non-adherent, and as the operation for its removal was,

therefore, likely to be capable of being performed rapidly, I decided to do both operations at once. The first operation occupied only half an hour, the second an hour and a half. The uterus was very moveable and easily pulled down, and the operation was accomplished without difficulty. The operation of complete extirpation was chosen in preference to partial removal, because I had no means of knowing how high the disease extended. The specimen shows that the case was one for which the minor operation would probably have been sufficient. It is easy to be wise after the event.

The cause of death appeared to be intestinal paralysis, a condition after abdominal section to which Mr. Malcolm has specially directed attention.* The autopsy showed that there was no mechanical obstruction. I regret that I did not pass the rectal tube, which might have had the effect of relieving the distension. The lymphatic glands in the pelvis were already infected, so that under any circumstances the patient would have had a recurrence. I am disposed to doubt whether it is ever wise to operate when the ulcerative process has commenced. In this case I was tempted, by the excellent state of the patient's health and the shortness of the period since the first symptoms of the disease made their appearance, to give her such chance of relief as operation would afford.

Of the sponge episode I am heartily ashamed. The blame rests with myself, and it is no palliation of the oversight to say that it is the first time such an accident has occurred to me, or that I sinned in good company.† I see no reason, however, to think that the sponge did any harm, or in any way contributed to bring about the fatal result.

Case 3.—Amy S—, aged 43, married, was admitted into St. Thomas's Hospital January 11th, 1890. Married

* "The Condition and Management of the Intestine after Abdominal Section," 'Med.-Chir. Trans.,' vol. lxxi, 1888, p. 43.

† See Wilson (H. P. C.), "Foreign Bodies left in the Abdomen after Laparotomy," 'Amer. Gynæcological Transactions,' vol. ix, 1884.

at twenty-one; two children, one two years and one seven years after marriage. Menstruation regular up to five months ago, when the flow increased in quantity, duration, and frequency. Latterly, the hæmorrhage has been almost constant. Four days before admission had a flooding on rising from bed in the morning; the hæmorrhage recurred the next day. Had severe shooting pain at beginning of illness; none the last few weeks. Discharge watery, not offensive.

Patient a thin, sallow, anæmic woman. Vagina contracted; os uteri high up, lips thickened and everted, the whole of their visible surface covered with a soft, easily-bleeding proliferating growth, extending laterally for a short distance on the vaginal wall on both sides. On the right side and posteriorly, the edge of the posterior lip was difficult to reach, being flattened out and fixed to the vaginal roof.

On January 22nd, under ether, the body of the uterus was felt fairly moveable; cervix fixed. The organ could not be depressed by pressure from above. The contraction made it difficult to ascertain the condition of the broad ligaments, but no swelling or induration was discovered. The examination, as on previous occasions, gave rise to a good deal of bleeding. A small portion of the diseased tissue was removed for microscopical examination.

On the 28th Mr. Shattock reported that the growth was a squamous-celled carcinoma.

Operation (February 6th).—(The original intention was to perform supra-vaginal amputation of the cervix, but this was abandoned in favour of total extirpation as the operation proceeded.)

An attempt was made to hold the uterus steady by means of hooks high up within the canal, but unsuccessfully. The anterior lip was therefore seized with a volsella; but though traction was combined with pressure from above, the drawing down amounted to little more than overcoming the eversion. An incision was made in the vaginal mucous membrane beyond the diseased surface

and the bladder separated. A similar incision was made posteriorly after seizing the posterior lip, and Douglas's pouch opened. A stout silk ligature was now passed through the upper part of the cervix, and a further attempt made to draw down the uterus, but without success. The left broad ligament was with much difficulty ligatured in in sections, and the lateral attachments divided. A strong thread was now passed through the body of the uterus and traction made, but the organ would not move. The cellular tissue at the base of the right broad ligament was therefore secured with a ligature; but in dividing the cervix from it, part of the diseased portion was unavoidably left in the stump. Still, the uterus could not be moved. The hand was therefore passed into the peritoneal cavity and a number of peritoneal adhesions of the right tube, ovary, and broad ligament gently separated. This set the uterus free; the ligature and separation of the right broad ligament were completed, and the uterus removed.

The operation lasted no less than three hours and forty minutes. During the last hour the patient had been in an alarming condition. The vagina was tamponed with iodoform gauze, and wood-wool pads were placed over the vulva.

In a few hours the patient rallied, and in twenty-four hours she was able to pass urine voluntarily. After forty-eight hours the temperature rose, and the tampon was therefore removed. It was found to be highly offensive. The tampon was not renewed. Next day, the temperature was under 100°, and the general condition was satisfactory. Two ligatures came away from the left broad ligament on the twelfth day and two more from the same side on the thirteenth. On the latter day, a piece of loose dead tissue also came away.

The patient left the hospital on the 15th of March. She had at that time a slight purulent discharge, and the ligatures on the right side had not yet separated; but her general condition was excellent, and the wound had con-

tracted to very small dimensions and presented a healthy appearance.

Description of Parts removed.—On the left side the uterus has been removed at its junction with the broad ligament, but on the right side a portion of the cervix is missing. Nearly the whole of the cervix is involved in the disease, the infiltration reaching almost to the os internum, but not beyond it. The disease has spread into the connective tissue at the base of each broad ligament. A subperitoneal fibroid about the size of a walnut is attached posteriorly to the left corner of the fundus.

Remarks.—The difficulty of the operation in this case was due partly to the fact of the disease having extended more deeply than was suspected into the connective tissue at the base of the right broad ligament, but still more to the extensive adhesions in the neighbourhood of the right broad ligament, the result of old pelvic peritonitis. The fact is that, although the case has done well, it was unsuitable for operation. I had not attached sufficient importance to the immobility of the cervix. Every case, especially in a man's early experience, teaches some valuable lesson.

Case 4.—Emily S—, aged 47, married, was admitted into St. Thomas's Hospital February 4th, 1890.

Family history good, except that mother is said to have died from cancer of the leg. Catamenia commenced at the age of eighteen, and, after ceasing for a year, continued regularly and painlessly. Flow scanty. Married at twenty-eight; nine children, the last six years ago; has not menstruated since. Patient has recovered well from her confinements, and has had no serious illness.

She first presented herself on Oct. 12th, 1889, as an out-patient. She then stated that for the past month she had noticed a slight yellow vaginal discharge, which was occasionally offensive. There was no pain complained of, and no hæmorrhage except after coitus. A suspicious roughness was at that time detected within the cervix;

no unhealthy appearance outside the borders of the os. The condition underwent no apparent change until January 15th, 1890, when the patient was seized with severe pain in the lower part of the abdomen, chiefly in the right iliac fossa; the act of defæcation caused intense pain.

On admission, February 4th, the patient was a well-nourished, healthy-looking woman. On bimanual examination, the uterus was found to be slightly enlarged, retroflexed and adherent. Cervix obliterated; os patulous, inner margin rough and uneven. An ill-defined, tender swelling felt on each side of the uterus. Through the speculum, the lower end of the cervical canal had a dusky-red uneven appearance, and fœtid pus was seen issuing from the os.

A fortnight later the lateral swellings had greatly dimished, and the outline of the body of the uterus had become much more distinct as felt *per rectum*. It was still retroflexed and immoveable. A curette was passed into the cervix, with a view to remove a portion of the growth for microscopical examination. Several pieces (one of the size of a large pea), which must all have been already detached or nearly so, were easily withdrawn, whereupon a quantity of thick offensive pus flowed out of the cervix in a stream. A rise of temperature (102·6°), accompanied with nausea and headache, which had occurred two days previously, was thus accounted for.

The fragments removed were handed to Mr. Shattock, who, on February 22nd, reported that the microscopical appearances were those of a columnar-celled carcinoma.

Extirpation was therefore proposed and acceded to.

The operation was performed on February 27th, in the manner previously described. Some difficulty was encountered from there being no projection of the cervix into the vagina, and from the fixation of the body by peritoneal adhesions along the entire breadth of the fundus. These adhesions were separated by the fingers passed up posteriorly. There being a good deal of oozing from the lateral attachments of the cervix, the connective tissue at the base

of each broad ligament was ligatured. The broad ligaments were then compressed by long platinum-plated pressure forceps, and, without further ligature (except one, passed round the uterine end of the left tube and parts adjacent), the detachment of the uterus was proceeded with. The forceps were left *in situ*. To prevent the catch from slipping, the handles of each were tied round with a ligature. No tampon was used; the only dressing being wood-wool pads outside the vulva, kept in position by a T-bandage. No hæmorrhage took place during or after the detachment of the uterus.

The operation lasted two hours and twenty minutes. The patient during the next two days had very little pain, and scarcely any sickness. The forceps were removed in forty-eight hours. On the fourth day, the patient was able to dispense with the catheter; and flatus was passed *per anum*. An aperient was ordered, and the bowels acted freely on the sixth day. On the eighth day, the discharge being very offensive, a vaginal douche of potassium permanganate was ordered to be given twice a day. The two ligatures came away easily on the thirteenth day, each with a slough attached. Patient very well and cheerful, sitting up to her meals. On the seventeenth day a vaginal examination was made. The vaginal wound admitted two fingers, and had a perfectly smooth border. The fingers passed through it into a closed pouch about two inches long. The convalescence was as free from pyrexia as a normal puerperium.

Description of Parts removed.—The lower part of the cervix has been destroyed by the disease, so that its lowest extremity has an irregular, ragged appearance. On the right a portion has either crumbled away or been torn off. The disease has infiltrated up to and beyond the os internum. The mucous membrane of the body is blood-stained and ulcerated in patches over its whole extent. Many of the ulcers have ragged borders, and from their surface are seen small rounded projections, of the size of a pin's head. The muscular tissue of the body, except

near the os internum, does not appear to be infiltrated with new growth; but it is œdematous throughout, and here and there are seen yellow streaks having the appearance of fat. The peritoneum along the whole breadth of the fundus posteriorly shows numerous ecchymoses, and shreds of adherent membrane. The uterus has been removed closely up to the wall on both sides.

Histological report by Mr. Shattock.—The disease is typical carcinoma, arising in the uterine glands. The upper limit of the disease corresponds to a line three centimetres from the top of the uterine cavity, and one centimetre above the level of the os uteri internum. What remains of the glandular structures above this point is normal, but most of the mucous membrane has been destroyed by ulceration, the epithelium having entirely disappeared, with the greater part of the glands, the deeper extremities of which are the only portion remaining. A considerable amount of extravasated blood, of old date, is seen in the remains of the mucous membrane. There is no indication of malignant change in the diseased mucous membrane of the body.

Remarks.—This was the first case in which I employed clamp-forceps, instead of ligatures, for securing the main portion of the broad ligaments. The result was entirely satisfactory. The larger amount of sloughing produced seems to me a distinct advantage in cases of cancer. It was also the first time that I discarded the use of internal dressings.

General Remarks.—In bringing these cases before the Society, I am not unmindful of the discussion that in the early part of the year 1885 followed the reading of Dr. William Duncan's able communication on "Total Extirpation of the Uterus," or of the fact that, with two exceptions (Sir Spencer Wells and Dr. Graily Hewitt), every speaker who took part in that discussion agreed with Dr. Duncan in condemning the operation as unjustifiable. One of the chief grounds for this wholesale condemnation was the high mortality of the operation. Dr. W. Duncan collected all the cases

he could find recorded up to that date, 276 in number, and found the total mortality to be 28·6 per cent. But although the effect of that discussion was to check the performance of the operation in this country, so that comparatively few cases have been published since, the gynæcologists of other countries have been under no such deterrent influence. The consequence is, as we might expect, that the mortality has been already considerably reduced. Even at that time Dr. W. Duncan's estimate was probably too high. The true mortality of an operation is not to be arrived at by including every case, however inexperienced the operator, but by taking the results of the best operators, and those of largest experience. In Dr. William Duncan's list there are no fewer than thirty-five operations by men whose experience was limited to a single case. Martin collected the results, up to the end of 1886, of the six German operators who had the largest experience, and found their mortality to be 15·1 per cent. (311 cases, with 47 deaths). But even this has since been greatly improved upon. In his reply, at the close of the discussion to which I have just alluded, Dr. W. Duncan expressed himself as feeling "sure that increased experience would never bring the mortality down from 28 per cent. to that which follows supra-vaginal amputation, namely, 7½ per cent." How do the figures stand now? At the Third Congress of the German Gynæcological Society, held at Freiburg in June, 1889, Münchmeyer reported that, in 160 cases of total extirpation of the uterus, performed at Dresden between the years 1883-89, the total mortality was 5·4 per cent. Forty-eight of these cases had already been reported by Leopold. Of the last 112 operations, 52 *were performed in succession without a single death.* In 80 of the 160 cases, the operation was undertaken for cancer; only four of the patients died from the effects of the operation.*

In the same year (1889), Kaltenbach reports sixty-two

* 'Archiv für Gynäkologie,' Bd. xxxvi, 3tes Heft, Berlin, 1889, pp. 424, *et seq.*; and 'Centralblatt f. Gynäkol.,' Aug. 3rd, 1889.

cases of total extirpation of the uterus, with two deaths; one from sublimate-poisoning in a patient with pyelonephritis of one kidney and atrophy of the other; the other from injury of the ureter and probably also of the bladder.*

Turning to France, we find that Péan, in the years 1886-7, extirpated the uterus for cancer in twenty-two cases, with seven deaths; while of the sixteen operated upon in the first seven months of 1888 not one died.† Whatever may be the ultimate verdict of the profession with regard to this operation, it is evident that the objection on the ground of its heavy mortality must henceforth be abandoned. Taking the cancer cases of the three operators whose statistics I have just quoted, the total mortality is 7·3 per cent., and if the German statistics alone be considered, the mortality is only 4·28 per cent. If every newly proposed operation that shows at first a high death-rate is to be at once denounced as unjustifiable, there is an end to surgical enterprise and surgical progress. I do not propose to enter at present into the larger question as to how far the operation is capable of diminishing suffering and prolonging life. The data for pronouncing a final judgment on these points are not yet attainable. A certain time must elapse after an operation before we can speak of its permanent results.

If we take, as the test of success in operations for cancer, freedom from recurrence for a period of three years, it will be obvious that most of the cases included in the foregoing statistics have been operated upon too recently to allow of a statement of results. This is not the case, however, with regard to all of them. Thus, thirty-one of Leopold's cases at Dresden were operated upon more than three years before the date of Münchmeyer's report.‡ Of this number no fewer than seventeen, or 54 per cent., presented no sign of recurrence.

* 'Centralblatt f. Gynäkologie,' Nov. 2nd, 1889.

† Secheyron (L.), 'Traité d'hystérotomie et d'hystérectomie par la voie vaginale,' Paris, 1889, p. 549.

‡ 'Archiv für Gynäkologie,' Band xxx, Berlin, 1887, p. 401.

If we agree with Dr. John Williams and others that it is justifiable to consider a case cured if *two* years have elapsed without a recurrence, the proportion of cures will appear still more remarkable, for, of forty-two cases operated upon more than two years previously, 27, or 64·5 per cent., remained well.* These results cannot but be regarded as most encouraging, and the record of the succeeding years promises to be equally satisfactory.

There is one point in regard to the pathology of cervical cancer as to which two of my cases (Nos. 1 and 4) appear to me to furnish evidence of some value. I refer to the question whether cancer of the cervix does or does not tend to spread upwards into the body of the uterus. In both the cases just named (each of them being of the columnar-celled variety), an examination of the specimens and of the sections kindly prepared by Mr. Shattock will show that the disease had distinctly invaded the body of the uterus. It is maintained by the advocates of supra-vaginal amputation of the cervix for cervical cancer that the disease exhibits little or no tendency to invade the body of the uterus, and that, mainly for this reason, total extirpation possesses no advantages over the partial operation in the treatment of this affection.† The point is of great practical importance, and every case, capable of shedding light upon it, ought to be recorded. It is true that the minor operation may be extended so as to include the removal of a portion of the body of the uterus, and Dr. John Williams, an uncompromising supporter of this operation, even speaks of carrying the excavation of the body so far as to leave a mere shell. But surely this is to make the lesser operation as formidable and difficult if not actually as dangerous as the greater. More-

* It may be well to state that before these figures were published, every one of the patients was communicated with either directly or through their medical attendant. Most of them presented themselves personally for examination; the rest furnished a medical report. In only one instance was no answer received to the letter of inquiry.

† Williams (J.), Harveian Lectures on 'Cancer of the Uterus,' Lond., 1888, p. 116.

over, this extensive hollowing out of the body of the uterus is not ordinarily practised in supra-vaginal amputation of the cervix, and does not form a recognised part of the operation. Indeed, it is difficult to see why it has been suggested, if it be true that cancerous disease of the cervix has no tendency to grow towards the body. If, on the other hand, further observation should show that early extension of the disease upwards into the body is an event of not uncommon occurrence, at any rare in cases of columnar-celled carcinoma, it will scarcely be maintained that supra-vaginal amputation of the cervix is as thorough and satisfactory a mode of removal as total extirpation.

With regard to the alleged early implication of the parametric connective tissue, I may point out that this has recently been called in question.* I do not, however, propose to go into this matter, because it does not really affect the question as to the relative advantages of the two operations. In neither the one nor the other are we able to remove any considerable amount of the surrounding connective tissue, and any argument founded on the special liability of this tissue to be invaded would tell equally against both operations.

I am, of course, perfectly well aware that the evidence afforded by two cases as to the early implication of the body of the uterus is far from being conclusive. Nevertheless, specimens of cancer of the cervix, in a comparatively early stage, and removed not in the post-mortem room, but from the living body, are sufficiently rare to give even a single specimen a certain value. And the fact of the disease having spread into the body in both my specimens seems, at any rate, to afford *primâ facie* ground for further investigation. With regard to museum specimens, they, for the most part, illustrate only the later stages of the disease. An exception to this, apparently, is to be found in the specimen from St. Bartholomew's Hospital Museum, which forms the subject of an excellent

* Sinclair (W. J.), "Vaginal Hysterectomy for Cancer," 'Practitioner,' Dec., 1889.

lithographic plate (Plate xiii, fig. 1) in Dr. Williams's book. It is significant that in that specimen also the disease has spread upwards into the body of the organ. In the later stages it is certainly the rule to find the body more or less deeply implicated. It is so in almost every one of the specimens in the museum of the Royal College of Surgeons, and it will be seen to be so in the specimens on the table from the museum of St. Thomas's Hospital.*

Another point upon which the advocates of the partial operation lay much stress is that when the disease recurs after high amputation of the cervix, the recurrence usually takes place in the parametric connective tissue and not in the uterine stump. I have no evidence to offer on this question. If further observations should establish the truth of this statement, it will of course tell so far in favour of the minor operation. But it will not finally dispose of the question. There are other points to be considered (as, for example, the possibility of there being separate nodules of cancerous growth high up in the body), which, however, it is beyond the scope of this paper to discuss.

May I be permitted, before I conclude, to make two remarks? The first is that, while hesitating, for the reasons I have given, to accept some of the conclusions at which Dr. Williams has arrived in his work on cancer of the uterus, I yield to no one in my admiration of the thoroughness of the clinical and pathological observations upon which that work is based, or in my gratitude for the many valuable lessons I have learnt from it. The second remark I wish to make is that, although I have endeavoured in this paper to show that there are good reasons for not hastily discouraging the treatment of cervical cancer by vaginal hysterectomy, I am by no means so enamoured of the operation as not to be ready to welcome any other method of treatment that promises a smaller immediate mortality and better permanent results.

* For detailed description of these specimens, see next page.

Appendix descriptive of the Museum Specimens shown in illustration of Dr. Cullingworth's Paper.

Specimen 1 (St. Thomas's Hospital Museum, No. GG47).—The uterus and vagina with part of the bladder and urethra. The cervix is destroyed by cancerous ulceration, the vaginal portion having entirely disappeared. The vaginal wall is invaded by the ulceration all round the cervix. A zone of similar ulceration is seen, separate from the above, close to the surface of the vagina and reaching to within an eighth of an inch of the meatus urinarius. In front, this zone is an inch in breadth; posteriorly, rather less. The two sites of malignant ulceration appear to be continuous along the submucous tissues of the vagina, the surface of the intervening mucous membrane being for the most part unaffected. The disease has invaded the tissues around the lower part of the vagina, a ring of infiltration involving the urethra, sides of vagina, and recto-vaginal septum. The disease extends upwards *into the body of the uterus to within one-third of an inch of the fundus,* affecting the whole thickness of the posterior wall with the mucous membrane. The same is true of the anterior wall, only that the disease does not reach quite so high. There is no obvious extension of the disease into the tissues at the sides of the uterus. The cancer is of the squamous-celled variety.

Specimen 2 (St. Thomas's Hospital Museum, No. GG52).—The uterus, ovaries, and bladder. The uterus is very much enlarged; the cervix and *lower part of the body* are infiltrated with malignant new growth, in some parts ulcerated on the surface; *the upper part is similarly affected, though a small part of the muscular structure there appears to be healthy.* The cavity of the body is considerably enlarged by ulceration of the affected mucous membrane and muscular tissue. The connective tissue on all sides is deeply involved. The growth in the anterior wall of the cervix has extended to the bladder, forming a projection

into its cavity. The disease extends downwards so as to involve a portion of the vagina and contiguous portions of the left ureter, the bladder, and the urethra. The right ovary is healthy; the left, which is closely adherent to the uterus, is the seat of carcinomatous infiltration, by which it is increased in size to that of a large orange. A portion of large intestine adheres to it, but does not appear to have been invaded by the disease.

Under the microscope it is now impossible to say whether the growth is a squamous or a columnar-celled carcinoma.

Specimen 3 (St. Thomas's Hospital Museum, No. GG53). —The uterus, vagina and bladder. The cervix and *lower part of the body of the uterus* are completely destroyed by cancerous ulceration, *the growth involving the muscular tissue above the ulceration to within an inch of the fundus.* The posterior wall of the bladder is involved, and a communication exists between the bladder and vagina. There is no invasion of the broad ligaments except the connective tissue at their base immediately contiguous to the cervix.

The disease is shown under the microscope to be columnar-celled carcinoma.

Specimen 4 (St. Thomas's Hospital Museum, No. GG57). —The uterus and bladder. The whole of the cervix and the lower part of the body of the uterus are destroyed by cancerous ulceration, the new growth having extended upwards *into the body of the uterus to within a quarter of an inch of the fundus,* and downwards into the upper part of the vaginal wall. The tissues around the cervix, including the posterior wall of the bladder, are invaded. The lower part of the right broad ligament is involved; the left broad ligament is free.

The carcinoma is shown microscopically to be of the squamous-celled variety.

Specimen 5 (St. Thomas's Hospital Museum, No. GG59). —The uterus and vagina, with the bladder and rectum. The body of the uterus is a little enlarged, and the lower

part, up *to a point half an inch above the os internum* and an inch and a quarter below the fundus, is infiltrated with cancerous matter. The lower part of the cervix is destroyed by ulceration. The vagina, except at its lower part, is similarly destroyed, and in its place is a large ill-defined cavity, into which the bladder, uterus, and rectum open. The lower portion of the urethra remains, but is unconnected with the bladder, the lower part of which is destroyed. The anus is entire; the rectum opens into the common cavity by two apertures, one, two inches above the anus, the other, five inches above.

The specimen is shown by the microscope to be a squamous-celled carcinoma, with nests.

Dr. JOHN WILLIAMS expressed his high appreciation of Dr. Cullingworth's paper. The question raised in it—the treatment of cancer of the cervix of the uterus—was of very great importance. In coming to a conclusion upon it, regard should be had to two things: (1) the direction of growth of cancer when it began in the cervix, and (2) the difference in the results obtained after total extirpation of the uterus and supra-vaginal amputation of the cervix. With regard to the direction of the growth of cancer of the cervix, it had been maintained that its tendency was to spread outwards towards the parametric tissue. If the disease began near the external orifice, it spread upwards and outwards; if it began near the internal orifice it spread downwards and outwards, so as in each case to involve the whole of the cervix; but it showed no tendency to invade the body of the uterus, and consequently invaded this part only in advanced stages, when the parametric tissue had been affected. The object of Dr. Cullingworth's paper was to show that cancer of the cervix invaded the body at an earlier period than that just stated, and that consequently total extirpation of the uterus was an operation preferable to supra-vaginal amputation of the cervix in this disease. In support of this view he has exhibited some half-a-dozen specimens of the pelvic organs of women who had died of cancer of the cervix, and given records of four cases, accompanied by specimens, in which he had performed total extirpation for cancer of the cervix. Now, what did these specimens show? The half-dozen taken from the body after death (and every hospital museum in London contained any number of such specimens) showed this: that in each one of them the body of the uterus was left almost if not quite in its

entirety, while the cervix had completely disappeared: that the connective tissue around the cervix, that in the base of the broad ligament and that around the upper part of the vagina had been eaten away: that the bladder or the rectum or both had been invaded: and that the result of the disease had been to form a large cavity in the structure of the cervix and its surroundings, and to leave the body of the uterus almost in its entirety. What stronger evidence could have been brought forward to show that the body of the uterus was not a morsel to the taste of cancer of the cervix, and that cancer of the cervix revelled in the parametrium, but was disinclined to invade the uterine body? But what did the four cases which formed the bases of the paper show? One of them was a case of squamous epithelioma. The disease in this instance was, as usual, quite superficial, being only half an inch in depth—but it had spread beyond the cervix on to the vaginal wall, thus showing, as had been before pointed out, that the direction of growth of squamous epithelioma of the cervix was superficial, and on to and along the vaginal walls. There was no suspicion that the disease had invaded the body in this case, and yet the whole uterus was removed. In the other three cases the cervix of the uterus was so completely diseased that it was found impossible to grip the uterus during the operation, for by reason of its friability it broke down bit by bit. Examination of the organ showed that the whole thickening of the cervix was cancerous, and that the parametric tissue had been invaded. So that these cases were examples of cancer in an advanced stage, in which no operation, and least of all such a serious operation as total extirpation of the uterus, was justifiable (in saying this Dr. Williams spoke with the advantage of having examined the organs), for it gave the patient not the faintest chance of a radical cure, and an operation of such magnitude as total extirpation should never be undertaken as a palliative measure. But even in these specimens of advanced cancer had the disease passed the inner orifice and invaded the body? Dr. Cullingworth in his paper stated that the sections under the microscope showed that it had. Dr. Williams had examined the sections and found in them no evidence one way or the other. Indeed, the sections showed nothing except cancer in an organ largely composed of muscular-fibre cells; they showed no structure characteristic of the body or the cervix of the uterus. On examination of the organs themselves he could find no evidence that the disease had passed the inner orifice. Owing to the ulcerated state—which was admitted not to be cancerous—of one of them, it was perhaps impossible to decide this point. With regard to the other, he could find no evidence that the disease had passed beyond the limits of the cervix in the direction of the body, while it was clear that it had in all these cases invaded the parametric tissue. The specimen exhibited by the President

had clearly passed the internal orifice, but in this case, again, cancer was in an advanced stage, for it had invaded the cellular tissue around the cervix and made the case quite unfit for operative measures. Dr. Herman's specimen belonged to a class which had been described by Dr. Williams from its earliest to its latest stages, and was in that stage in which operative proceedings did nothing but harm. So that every one of the specimens exhibited to-night went to prove that cancer of the cervix showed a tendency to grow outwards towards the parametrium. and invaded the body in the later stages only. The results obtained after total extirpation and supra-vaginal amputation of the cervix went to show the same thing. After supra-vaginal amputation recurrence took place, not in the stump of the uterus left, but in the cellular tissue around (the exceptions to this were rare); and after total extirpation it occurred of course in the same place, and, if statistics of the same period be taken, far more frequently. This may possibly be explained by the fact that total extirpation was at one time performed under a false impression of the pathology of cancer, for the more severe, while supra-vaginal amputation was adopted in less severe cases. It seemed to Dr. Williams that if the recurrence after supra-vaginal amputation took place in the cellular tissue and not in the uterine stump, total extirpation presented no advantages over the less severe operation.

Dr. WILLIAM DUNCAN did not think that cancer of the cervix uteri tended to spread up into the body of the uterus until (in the great majority of cases) it had previously infiltrated the cellular tissue outside the uterus. He was quite of Dr. John Williams's opinion that the many museum-specimens now shown clearly supported this view, for although the specimens were those of cancer in the latest stage, the uterine body was in most of them apparently unaffected. Since reading his paper on total extirpation of the uterus before the Society in 1885, Dr. W. Duncan had carefully examined every case of uterine cancer that he had met with. In only three could he satisfy himself that the parametric tissue was unaffected and a radical operation advisable. He drew attention to the importance of carefully examining the utero-sacral ligaments by digital exploration through the rectum, for in many cases of cancer in which the ordinary bimanual examination showed the uterus to be mobile, yet either one or both utero-sacral ligaments proved to be thickened from cancerous infiltration. This thickening could only be detected on rectal examination, and of course, whenever found, absolutely contra-indicated operations. He asked if Dr. Cullingworth examined by the rectum in his cases, as the fact that in some of them the uterus could not be drawn down with a volsella seemed, in Dr. W. Duncan's opinion, to prove that the cancer was not limited to the uterus at the time of operation. With regard to

the comparative risks of total extirpation and supra-vaginal amputation, Dr. Duncan regarded foreign statistics as practically valueless, inasmuch as total extirpation was performed for other conditions than cancer, such as prolapsus uteri. He still maintained that in the few cases where any radical procedure was called for, the supra-vaginal amputation was the preferable operation.

Dr. W. Japp Sinclair referred to the fact that the minor operation had been almost unanimously abandoned by German operative gynæcologists as a point in favour of total extirpation. As the operations were performed almost entirely in the public hospitals, the German reports must be considered fully as reliable as any published. He would confine his remarks to the question of the direction in which the disease of the uterus spread. It was admitted on all hands that the results of total extirpation for cancer of the body were comparatively favourable, and it was also a fact, though not perhaps so frankly admitted, that extirpation for cancer of the portio vaginalis gave also permanently good results. The least favourable class of cases was cancer of the cervix. The reason of the above facts seemed obvious. In cancer of the body and of the portio vaginalis an operation made a clean sweep of all the affected tissue at a considerable distance anatomically, if not physiologically, from the disease. On the other hand, in cancer of the cervix it was extremely difficult, except in the very earliest cases, to keep wide of the infiltrated tissues. Again, cancer originating in the cervical canal was liable to remain concealed for a longer time than in the body, where it caused pain and discharge, or in the tip of the vaginal portion, where it produced atypical hæmorrhage. If the cancer were to spread, it must do so in the parametric structures, but the rule was that the spreading occurred comparatively late in the process of disease. Again, the exceptions in which the disease spread up and down to an extent which could only be ascertained after operation were so numerous that the only safe rule was to perform the major operation as early as possible. The operation was called major, but the speaker doubted if it was as dangerous as some surgical procedures which had been proposed as comparatively safe. These latter avoided wounding the peritoneum, but they left the circulation, both hæmic and lymphatic, comparatively uninterrupted, and that was a source of immediate and remote danger. Dr. Sinclair's experience of the operation now amounted to eighteen cases of total extirpation for cancer. Twelve of these operations had been performed within the last twelve months, and all were alive and well, except one patient who died of acute septic peritonitis. He gave details of cases of extirpation over two years ago in which no recurrence had taken place, and the patient remained in very good health. He concluded by expressing strong

concurrence in Dr. Cullingworth's opinion of the value of total extirpation, and congratulated the author of the paper on the courageous honesty of his statements of fact and opinion.

On the motion of Dr. LEWERS, seconded by Dr. W. S. A. GRIFFITH, the discussion was adjourned to May 7th.

MAY 7TH, 1890.

GRAILY HEWITT, M.D., Past President, in the Chair.

Present 38 Fellows and 10 Visitors.

Books were presented by Sir Hy. W. Acland, Prof. Allen, Dr. Calderini, the New York Academy of Medicine, the Guy's Hospital Staff, and the Westminster Hospital Staff.

Charles Arthur Morris, M.A., M.B., B.C.Cantab., F.R.C.S., and Frank F. Schacht, B.A., M.B.Cantab., were admitted Fellows of the Society.

Alber Ehrmann, L.R.C.P.Lond. (Southam), and Godfrey F. Reid, M.D.Dubl. (Orange Free State), were declared admitted.

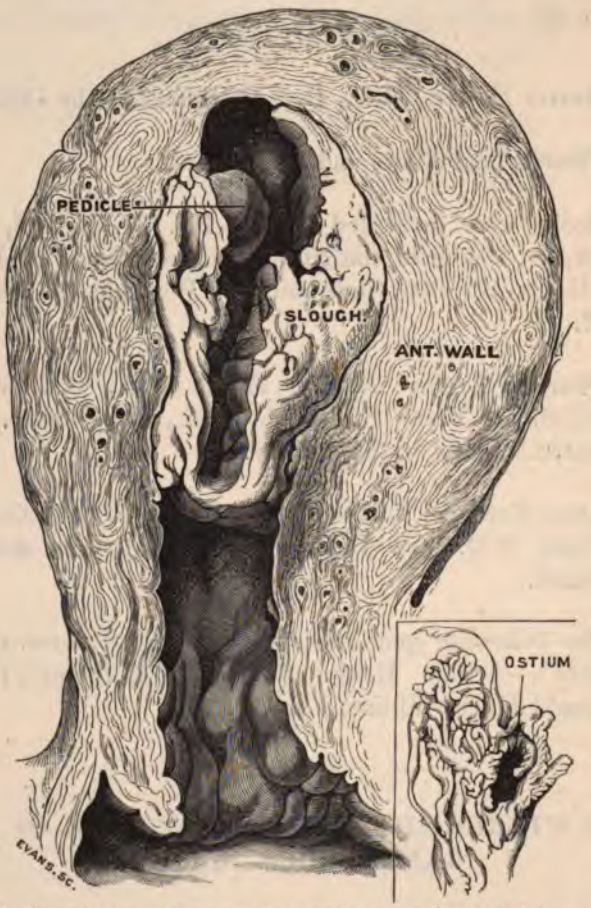
The following gentlemen were elected Fellows of the Society :—Arthur Henry Robinson, M.D.Durh.; and Reginald Muzio Williams, M.D.Lond.

A UTERUS SHOWING THE EFFECTS OF A GANGRENOUS FIBROID.

By J. BLAND SUTTON.

IN October, 1889, I was asked to see Mrs. ——, aged 43 years, in consultation with Dr. S. L. Smith. A dusky-red tumour, as large as a cocoa-nut, projected from the

genital orifice. This mass had been protruding during eight days; blood was, and had been for several days, oozing from its surface. The patient was admitted into the Middlesex Hospital. On examining under an anæs-



Section of uterus from which a gangrenous fibroid had been removed. The small figure in the corner represents the abdominal ostium of the tube.

thetic I soon found that the mass was a gangrenous uterine fibroid. An écraseur was applied to the pedicle,

the putrid mass removed, and the uterine cavity freely irrigated with sublimate solution, 1 in 2000. For some days the patient promised to do well, but on the evening of the fifth day after the operation the temperature suddenly fell from 101° to 97°, and she seemed about to die. In twelve hours the collapse passed off, peritonitis supervened, and death occurred nine days after the removal of the fibroid.

The examination of the uterus was very instructive. Its walls were greatly hypertrophied: on the posterior wall, near the fundus, was seen the rounded stump of the fibroid quite healthy and healed. It was surrounded by the uterine mucous membrane in a sloughing condition and nearly loose. The sloughing process had involved the mucous membrane of the Fallopian tubes, and portions of this putrid tissue had protruded into the cavity of the peritoneum and induced fatal peritonitis. Had the abdominal ostium become occluded by the inflammation, as so frequently happens in cases of salpingitis, this woman would probably not have died.

Mr. Alban Doran observed that Mr. Sutton's specimen proved how the peritoneum might become infected by the entrance into its cavity of putrid substances which originally became putrid within the uterus and passed into the peritoneum through the Fallopian tube. Septic peritonitis after childbirth and after operations in the neighbourhood of the cervix, most probably arose in the same way, that is by poisonous fluids simply passing up the tubes. More complicated doctrines as to peritoneal infection through inflammation beginning in the endometrium, and extending through the muscular substance to the peritoneum, or to the pelvic connective tissue were less likely to be correct.

AXIS PRESSURE BINDER FOR USE DURING LABOUR.

By Dr. Aymard, Ipswich (introduced by Dr. Horrocks).

ADJOURNED DISCUSSION ON DR. CULLINGWORTH'S PAPER ON FOUR CASES OF VAGINAL HYSTERECTOMY.

Dr. Lewers said that the most important question seemed to be as to whether vaginal hysterectomy or supra-vaginal amputation of the cervix was the better operation for those cases of cancer of the cervix suitable for radical treatment. In determining this question the two chief factors to be considered were—1st, the relative mortality of the two operations; and 2nd, the prospect of immunity against recurrence offered by each of them. As regarded the mortality in total extirpation, there was a greater risk of septic infection owing to the free opening into the peritoneum; a much greater risk of hæmorrhage, both during the operation and subsequently; and complications such as adhesions between the uterus and intestine or omentum might be met with. Further, as regarded the duration of the operation, and therefore the shock experienced by the patient, total extirpation compared unfavourably with supra-vaginal amputation. Although some German operators reported the mortality of total extirpation for cancer as 5 per cent., no such favourable record could be shown in England. Dr. Lewers urged that, in the case of an operation that had been extensively performed here, English rules of practice should be founded on English statistics. He believed, from his knowledge of published and unpublished cases, that the mortality of total extirpation for cancer in this country was much nearer 20 per cent. than 5. Dr. Lewers had himself performed three total extirpations, two for primary cancer of the body of the uterus, which recovered, and one for cancer of the cervix, which died. He had performed supra-vaginal amputation of the cervix seventeen times without any death.

Dr. Lewers reminded the Society that at its last meeting so high an authority as Dr. John Williams spoke of the chances of curing cases of cancer of the uterus by any operation whatever as "infinitesimal." On the other hand, a large proportion of the cases operated on in Germany were free from recurrence for so long a time after operation that if they were really cases of cancer they might fairly be considered as cured. The only possible explanation seemed to be that many of these cases were not really instances of cancer. Referring to his own series of seventeen cases of supra-vaginal amputation, Dr. Lewers said in fifteen of them the operation had been complete—that is to say, it was believed that all the diseased tissue had been removed. In these fifteen cases the results as regarded recurrence had been as follows:—Four cases were known to be quite well two years after the operation, six cases were known to have had a recurrence, three cases were lost sight of, and two other cases were free from recurrence, but had only been operated on within the last twelve months.

Omitting these latter from consideration, and counting the cases lost sight of as cases of recurrence, there remained four cases out of thirteen well two years after operation—that is to say, 30 per cent. This result, so far as he knew, was quite as favourable as any obtained by total extirpation, and it had been secured at no cost to life. From what he had read, and also from the experience of his own cases, Dr. Lewers believed that in nine cases out of ten the supra-vaginal amputation was the right operation in early cases of cancer of the cervix.

Dr. Walter Griffith stated that, from examination of specimens and experience of cases, he had formed the opinion that the kind of cancer was a very important matter. The only cases which could be considered really favourable for removal were cases of epithelioma, and it did not make much difference which operation was adopted so long as the whole disease was freely removed. He had

lost one patient from hæmorrhage after the removal of pressure forceps, the bleeding beginning whilst the vagina was being douched. The risk of this occurrence would make him very cautious in their use in future, except as auxiliary means to ligatures.

Dr. Macnaughton Jones, having referred to the increased responsibility devolving on those whose advice was sought in cases of cancer of the womb in the face of the ascertained results of vaginal hysterectomy, said that hitherto cancer of the uterus had been the opprobrium of gynæcology in the futility of the various operative procedures practised for its cure. His own record, including many complete high amputations, had been melancholy. He argued that Dr. John Williams's conclusions as opposed to hysterectomy were fallacious. They might be divided into three heads—statistical, pathological, and clinical. As against Dr. Williams's assertion that the German statistics were practically valueless, being based on hysterectomies performed for other cases than cancer, Dr. Jones quoted the statistics published by Drs. Mundé and Wells up to 1889, and collected from the results of 183 cases of cancer operated on in Germany, France, America, and England. Of these there were twenty-two deaths after operation, and in only twenty-three was recurrence noted up to the time of publication of these cases, and in thirteen recovery was said to be permanent. Considering the character of the operation and its comparatively recent introduction, he considered this record to be very favourable. Dr. Cullingworth, in his few cases, had himself acknowledged the advantages of experience in operating—as, for instance, in the use of the forceps instead of ligature, though Martin still operated by ligature. Ignorance and bungling, as even Mr. Lawson Tait acknowledged, were inseparable from high mortality in earlier operations of this kind. As to the pathological ground taken by Dr. John Williams, he demurred altogether from the view that the disease was so limited as he declared by the internal os. The researches

of Abel were quite opposed to this view, as also those of other authorities. He had seen undoubted cases where the fundus was invaded and not the parametrium. The microscope was not at times an infallible test, and good histologists were liable to error in such matters. Lastly, he did not agree to the clinical deductions of Dr. Williams. He could not see why one surgical principle should be applied to cancer of the breast and another to cancer of the uterus. He agreed to the proposition of Dr. Lewers that the prospects from the two operative procedures, high amputation and hysterectomy, should be put plainly before the patient. For himself he felt that in a case in which true cancer of the uterus was once clearly declared in the cervix uteri, and the surrounding tissues were healthy, he should lean to the side of hysterectomy and not amputation. It gave the woman the best chance both of prolonging and saving life.

Dr. T. C. Hayes thought that carcinoma of the cervix had a strong tendency to invade the body and fundus of the uterus. He seldom found that the disease was limited to the cervix when patients came under observation. Argument against vaginal hysterectomy based upon such limitations being the rule, or even common, was unsound. If there were assurances of this limitation, vaginal extirpation should not be resorted to. It was a much more dangerous operation than amputation, though in the future its dangers would probably be lessened. He could not too strongly urge that patients should in all cases be made fully aware of the serious dangers, and not buoyed up with false hopes of a permanent cure.

Mr. Egerton Jennings remarked that he would like to see broad principles discussed first, and methods of detail and comparisons between different operations afterwards. By the courtesy of three or four members of the profession who had answered his inquiries, he had in his possession notes of a few cases of cancer in which after a lapse

of five years—in one case of thirteen years—there had been no return of the disease. These were cases of cancer affecting the breast, the lip, and other regions of the body; but he contended that the curability of the disease by extirpation when it had attacked some parts of the body having been established, there was no reason why cancer of the uterus should not also be successfully dealt with by surgical operations. The only difficulty to be encountered in cancer of the cervix uteri was the peculiar anatomical surroundings of the locality under consideration. He agreed with Dr. Playfair, who had said that only a bold man could always venture to distinguish confidently between cancer of the cervix and other non-malignant conditions which so closely simulated it. Here he would observe parenthetically that, upon the authority of Dr. Playfair and of Dr. Bury, an undoubted case of uterine cancer has been reported cured by Chian turpentine mixture. Some speakers had commented upon the tendency of uterine cancer to spread laterally into the parametrium rather than towards the fundus uteri, and had urged the uselessness of removing the fundus as well as the cervix. Mr. Jennings accepted the statement as to the usual invasion of the parametrium in a lateral direction, but not the inference as to treatment drawn therefrom. He maintained that the entire organ should be first removed, and the surgeon's hand subsequently inserted into the pelvic cavity, by which means diseased portions of the parametrium and the ovaries could be drawn downward and removed. He was the first surgeon in this country who had successfully employed forceps to arrest the hæmorrhage from the broad ligaments instead of ligatures. In so doing he had adopted the suggestion of Sir Spencer Wells. More than a year ago he treated a case of epithelioma situated at the orifice of a hypertrophically elongated cervix by amputation sufficiently high up to ensure the incisions passing through perfectly healthy tissues. Such a case was, however, rare, and, as a general rule, Mr. Jennings advocated total excision of the uterus after the method he had described.

Dr. GRIFFITH here inquiring whether in the case Mr. Jennings had just referred to, the diagnosis was confirmed by microscopic examination, Mr. Jennings replied in the negative, but said that the diagnosis rested upon the authority of four surgeons.

Dr. CULLINGWORTH, in reply, expressed the pleasure it gave him to see Dr. Graily Hewitt in the chair on that occasion, Dr. Hewitt having been one of the only two speakers who, when the subject of total extirpation of the uterus for cancer was discussed by the Society in 1885, had refrained from denouncing the operation as unjustifiable. Dr. John Williams had argued that the statistics of the German operators were unreliable on the ground that, in Germany, vaginal hysterectomy was performed not only for cancer, but for other conditions. This would have been a sound argument if the German operators had been in the habit of mixing the cases in their reports. But it was not so. The statistics of the cancer cases were given separately. Let them take, for example, Münchmeyer's cases. Of the total number reported (160), eighty were cases of cancer. Only four out of the eighty patients died from the operation, a mortality of exactly 5 per cent. The total mortality amongst the whole 160 cases was 5·4 per cent., so that at Dresden the operation was slightly less fatal in the cases of cancer, than when performed for less serious conditions. Dr. Williams's next point was that he could not accept the statement as to the disease having infiltrated the tissues above the *os internum*, because of the difficulty of deciding the precise line where *cervix* ended and *corpus* began. He thought this was a somewhat poor argument to bring forward, for if the infiltration had extended so near to the *os internum* as to raise a doubt whether it had or had not passed the line, surely the point for which he (Dr. Cullingworth) was contending might be conceded. As a matter of fact, however, in three out of the four specimens there was no manner of doubt as to the position of the *os internum*; it was ren-

dered evident by the usual constriction, as well as ascertained by accurate measurement; while in the fourth case it had to be determined by measurement alone, the glands, upon which Dr. Williams thought the determination should entirely rest, were too far involved in the disease to allow of their identification. Dr. Williams next said that no better evidence could have been adduced in favour of his view than was afforded by the five museum-specimens on the table. He must say that he listened to that remark with amazement. Did Dr. Williams only acknowledge those tissues to be cancerous which had become ulcerated and destroyed? Surely he would allow that the tissues often became infiltrated to a considerable distance beyond the limits of the destructive process. The claim that these specimens disproved the tendency of the disease to affect the *corpus uteri* could not for a moment be sustained, for in two of them the infiltration had extended to within a quarter of an inch of the fundus, in one to within one-third of an inch, and in another to within an inch. Again, in the remaining specimen, though it was certain that the upper part of the *corpus* as well as the lower had become invaded, it was found impossible, owing to the age of the preparation, to define the limit by precise measurement. With regard to the recommendation that the operator should be guided as to the extent of his operation by the conditions discovered at the time of operation, it was one that, though it sounded well in a speech and looked well on paper, could seldom be carried into practice. If a pathologist, in the quiet of his laboratory and with the specimen in his hand, hesitated to define the limits of the cancerous infiltration until he had had an opportunity of submitting it to certain processes of hardening and staining, and of examining it under the microscope, how was an operator in the midst of an anxious and difficult operation to be expected to decide such a matter? It was often quite impossible for him to do so.

One of Dr. Williams's arguments in favour of the so-called minor operation was derived from the fact that

when the disease recurred after high amputation of the cancerous cervix the recurrence generally took place, not in the uterine stump, but in the parametric tissue. This undoubtedly constituted a more difficult argument to meet than those that had hitherto been dealt with. The phenomenon had its analogue in the breast. If, in the case of a cancerous breast, a surgeon contents himself with excising the diseased portion instead of removing the whole gland, any recurrence that may take place does so in the skin, or glands, or other surrounding tissue, rather than in the stump or unremoved portion of the breast-gland. It was a curious pathological fact, and one that had so far received no adequate explanation. But the knowledge of this fact deterred few surgeons from removing the entire breast in cases of cancer; and, as a matter of experience, the surgeons who, like Dr. Banks of Liverpool, removed it most freely were able to show the largest percentage of cures. Moreover, although it was the *rule* for recurrent cancer of the *cervix uteri* to attack other parts than the uterine stump, this, as Dr. Williams himself had shown, was not invariably the case. Was it not therefore wiser to extirpate the entire organ rather than run the risk of recurrence in the stump? Dr. Williams concluded his remarks by prophesying that a recurrence would take place in all the cases reported in the paper. It was highly probable that that prophecy would be fulfilled. It was unfortunately only too true that recurrence does occur after the great majority of operations for the removal of cancer, in whatever part of the body they are undertaken, so that it became pretty safe to foretell ultimate disappointment in any given series of three or four cases. Mr. Butlin had shown that even in so accessible a region as the breast the cures after operation for cancer do not exceed 10 to 15 per cent.; and if that were true of the breast, where the part could be freely removed and diseased glands extirpated, what might be expected in the case of internal organs like the uterus, where the conditions were so much less favourable? But even in

this matter of recurrence the operation of vaginal hysterectomy had completely justified itself, for experience had shown that the percentage of cures was actually higher than in the case of removal of the breast. Taking the Dresden statistics for example: of the eighty cases of total extirpation for cancer, no fewer than twenty-seven had lived for two years and upwards without any sign of recurrence, and therefore, according to the rule Dr. Williams had laid down, or at any rate had accepted, might be pronounced cured. Granted, however, that the chances of effecting a permanent cure were comparatively small, was the operation therefore to be abandoned? Had it no temporary value even in those cases where the disease unfortunately returned and the patient ultimately died from it? Let them take the case of the woman Knight, the first of the short series which formed the basis of the paper. When the patient was operated upon she was suffering from continuous hæmorrhage; her life was a burden; she was thin, careworn, wretched, and unable to attend to her household duties. It was now fourteen months since the operation, and although there had been signs of a recurrence of the growth after the first eight months, and a permanent cure was therefore out of the question, so slowly had the recurrent disease developed that the patient had even up to the present time been almost entirely free from hæmorrhage; there had been little or no offensive discharge; and she had been enabled to attend to her household duties and to the wants of her sick husband. Did not this repay her for the operation? Did not the comfort she had gained during these fourteen months compensate for the risk? The value of an operation was not to be measured merely by the chance of its effecting a permanent cure.

He now turned to the remarks of Dr. William Duncan. Dr. W. Duncan commenced by expressing his want of faith in German statistics. The questions that had been raised could only be settled by statistics; and as we must have them, he had, in his paper, quoted the most recent

statistics of two or three operators who had had a very large experience. Those operators happened to be Germans. Surely the figures were not on that account to be put lightly aside as unworthy of credence. Anticipating, however, some such objection as that raised by Dr. W. Duncan, he had been careful to select amongst the many series of statistics available two sets of cases only, where operations had been performed by men well known to the entire profession as eminently trustworthy and honourable, viz. Leopold (by whom many, if not indeed most, of the operations reported by Münchmeyer had been performed), Münchmeyer himself, and Kaltenbach. The statistics of these men were beyond cavil. He had quoted them, not because he shared Dr. W. Duncan's distrust of German statistics in general, but because he desired to deal with figures that every English gynæcologist would accept. Dr. W. Duncan went on to say that the museum-specimens he had placed on the table were valueless, because in each of them the disease had advanced to a stage when no one would think of operating. His answer to that was that the specimens, as Dr. Duncan must know very well, were brought forward with a definite object, wholly unconnected with the question of operation. They were produced to show that cancer of the cervix, of both kinds, if allowed to run its natural course, ultimately invaded the body of the uterus. All the five specimens had been taken out of the jars by Mr. Shattock, and sections cut from them had been submitted to a prolonged and careful microscopical examination to determine the particular nature of the growth in each case. The result was remarkable, in that it showed that of the four specimens in which the changes effected by maceration still permitted a diagnosis to be made, three were examples of squamous-celled carcinoma, and only one of columnar-celled or glandular carcinoma. So that we had here three instances of the ultimate infiltration of the *corpus uteri*, to within a very short distance of the fundus, by that form of cancer which was considered even less prone than the

other to extend in that direction. With regard to the condition of the utero-sacral ligaments, and Dr. W. Duncan's question as to whether this had been ascertained, he begged to refer to the reports of the cases themselves. In two cases it was known before the operation that the utero-sacral ligaments were involved in adhesions, but those adhesions were of an inflammatory nature, and though they added greatly to the difficulty of the operation they were not considered as contra-indications to it. The state of the utero-sacral ligaments was not the test as to the propriety of operating. Lastly, Dr. W. Duncan expressed his belief that in cancer of the cervix the disease did *not* spread into the body of the uterus. Expressions of belief, however, did not constitute an argument. Dr. Duncan must produce evidence in support of his belief before his opinion could be accepted as of any value. He had not done this, neither had he given any good reason for not accepting the evidence that had been adduced in support of the contention of the paper.

With the opinion expressed by Dr. Sinclair that, as regards their difficulty, there was scarcely anything to choose between the two operations of total extirpation and supra-vaginal amputation of the cervix, he entirely agreed. Dr. Sinclair preferred securing the broad ligaments by ligature to using the clamp forceps for that purpose. The points in favour of the clamp seemed to him (Dr. Cullingworth) to be (1) the great saving of time, amounting probably to twenty minutes, which was a not unimportant consideration in an operation of this kind; and (2) the larger extent of the slough in the parametric connective tissue entailed by its use, which was a distinct advantage where this tissue was beginning to be invaded by the disease.

The remarks of the other speakers had in a great measure been replied to in the preceding observations, and his further comments upon them would accordingly be very brief. Dr. Lewers had spoken of the danger of total extirpation as compared with supra-vaginal amputation, owing to the necessity for opening into the peritoneal cavity in

the former operation. It was, however, by no means uncommon for an opening to be accidentally made into Douglas's pouch in supra-vaginal amputation. When that accident occurred it was treated by the advocates of supra-vaginal amputation as a matter of little importance. If the opening of the peritoneum constituted an element of danger in the one operation surely it did so in the other. To his mind there was much less danger in opening the peritoneal cavity where this was followed by free drainage, as in the case of total extirpation, than where the peritoneal wound was covered up, as in the case of such a wound being made during supra-vaginal amputation of the cervix. An instance was given where a button-hole opening, accidentally made in the peritoneum of Douglas's pouch, during the operation of supra-vaginal amputation of the cervix, had led to a fatal result. The time had gone by for dreading the peritoneum, and he could not admit that the free opening of the peritoneal cavity added to the dangers of total extirpation. Dr. Lewers, in comparing the mortality of the two operations, had quoted figures that were altogether incorrect. The mortality from supra-vaginal amputation, so far from being *nil*, was, at present, over 7 per cent., even in the hands of the most able operators; while, on the other hand, the present mortality from total extirpation was not 20 per cent., but 5 per cent. Dr. Lewers had risen to explain that the mortality of *nil* in supra-vaginal amputation was taken from his own series of cases. In that case he should have said so. He ought also to have told them how he arrived at his estimate of the mortality of total extirpation. Perhaps he would say whether he had taken that also from his own experience.

Dr. Lewers.—No, my own death-rate from total extirpation has been about 30 per cent.

Dr. Cullingworth.—Evidently, then, the comparison was in every sense unfair. Dr. Lewers was of opinion that English practice should be guided by English statistics. He (Dr. Cullingworth) was of an entirely contrary opinion. The number of total extirpations that had been performed

in England was very small in comparison with the number performed in other countries, and it would be ridiculous not to accept the teachings of larger experience. In the case of other operations we were guided almost entirely by the experience of our German brethren. Let them take for example the modern Cæsarean section, which we owed to Germany; and Porro's operation, for which we were entirely indebted to Italy. Neither of these operations would ever have been performed in this country had English operators been guided by English statistics. Operators in this and in every other country ought to be ready to profit by the results of others, whatever might be their nationality.

Dr. Hayes had laid stress on the obligation that rested upon us of putting the chances fairly and fully before a patient. With this he heartily concurred. Not only should the risk of an immediately fatal result be explained, but the strong probability of recurrence.

The last speaker, Mr. Jennings, had very properly said that we ought not to limit ourselves to one operation or one method of treatment, but to be ready to adopt one operation in one case and another in another. He (Dr. Cullingworth) had hinted in his paper, and he might, perhaps, with advantage have given the suggestion greater prominence, that while the partial operation might be sufficient in most cases of squamous-celled carcinoma, total extirpation was the only safe method of dealing with glandular carcinoma of the cervix. If that view proved to be correct, and the evidence at present available certainly seemed to point in that direction, each operation would have its own proper sphere of usefulness, and a microscopical examination of a portion of the diseased tissue would decide which operation was called for in any given case. It would be narrow and unscientific to maintain that one operation was alike suitable for every case. Dr. Sinclair had well said, in a paper lately published in the 'Practitioner,' that until some better method of treating cervical cancer had been devised, the very hopeless-

ness of these cases if left to themselves would lead men to adopt operative measures for their relief. What we ought, then, to aim at was to discover which operation produced the best results, and for what class of cases each operation was the most suitable. The paper that had been read was intended as a contribution to this inquiry. He thanked the Society for the kind manner in which the communication had been received, and for the interest that had been shown in its discussion.

JUNE 4TH, 1890.

ALFRED L. GALABIN, M.D., President, in the Chair.

Present—43 Fellows and 6 Visitors.

Books were presented by Dr. Andrew F. Currier, Dr. Herman, and the Royal College of Surgeons of England.

Augustus W. Addinsell, M.B., C.M.Edin.; and Robert J. Carter, M.B.Lond., were admitted Fellows of the Society.

Hugh Smith, M.D.Lond. (Bow), was declared admitted.

The following gentlemen were proposed for election:—Alfredo Antunes Kanthack, B.A.Lond., F.R.C.S.; and Frederick John McCann, M.B., C.M.Edin.

THE GLANDS OF THE FALLOPIAN TUBE.

By J. BLAND SUTTON.

IN 1888 I placed before this Society evidence and argument to support my opinion that the familiar rugæ of the mucous membrane lining the Fallopian tubes are in essence glands. On that occasion it was urged by one Fellow (Mr. Alban Doran), a capable critic, that I ought to have supported my argument by adducing evidence in the shape of accurate drawings illustrating the characters of these glands in the Fallopian tubes of other mammals.

As time and opportunity permitted, I have had some faithful sketches prepared, by a competent draughtsman, from sections made under my personal superintendence by Mr. Kenneth Lawson and the skilful assistant to the museum of the Middlesex Hospital (Mr. Pollard).

The specimens shown as types were taken from the Fallopian tube of a Macaque Monkey, *Macacus rhesus*, and the Panolian Deer, *Cervus eldi*.

FIG. 1.—Transverse section through the Fallopian tube of a Macaque Monkey, *M. rhesus*, to show the gland-clusters.

The uterus of a Macaque may be best described as a miniature human uterus. A transverse section taken from the middle of its tube is shown in Fig. 1.

This specimen shows very well the cluster-like arrangement of the glandular acini, each presenting a single layer of large, regular sub-columnar epithelium.

An examination of a large number of Fallopian tubes shows that the middle of the tube—that is, near the junc-

tion of the ampulla with the isthmus—is the region where the glands are most abundant. The isthmus contains but few, and towards the outer end of the ampulla they are scanty. The proportion of glands varies in individuals and with age. These facts serve to explain the different

FIG. 2.—A compound racemose gland from the Fallopian tube of the Panolian Deer, *Cervus eldi*.

sketches of the tubal mucous membrane given by different authors.

As far as my investigations extend at present, the most complex tubal glands occur in Ruminants. A typical

specimen, showing an isolated gland from the Fallopian tube of the Panolian Deer, *Cervus eldi*, is sketched in Fig. 2. It is upon the type of a compound racemose gland with a single layer of large regular columnar epithelium. These complex recesses extend around the whole circumference of the tube, and, as a rule, eight to twelve may be counted in a single section. It is possible that

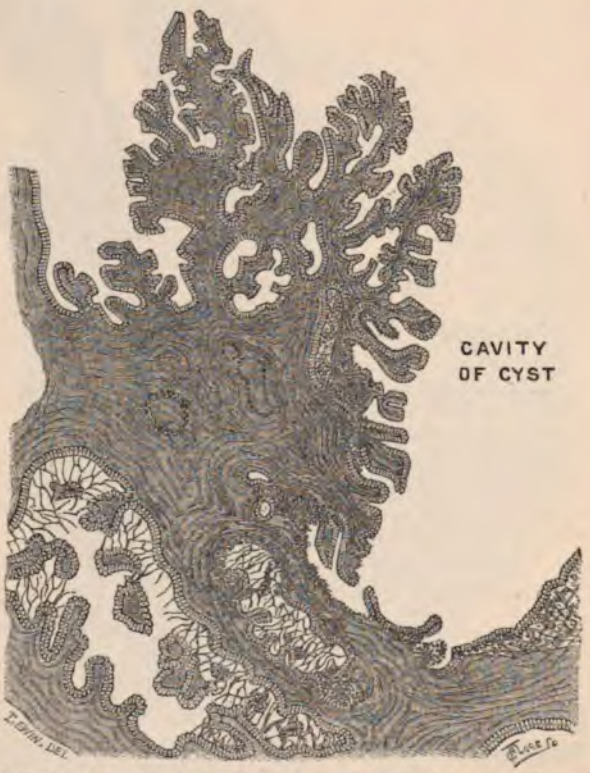


FIG. 3.—Microscopical characters of a Fallopian adenoma (Doran's case), for comparison with Fig. 1.

the epithelium of these recesses is furnished with cilia, but it is not so easy to determine this point, although it may seem a simple matter to those not experienced in practical

histology. These facts are of interest in relation to adenomata of the Fallopian tube. The first specimen of this apparently rare form of tumour was described by Mr. Alban Doran as a papilloma of the tube. I have had an opportunity of re-examining this tumour microscopically, and find it to be an adenoma, and the gland-structure mimics that of the normal glands of the tube. A sketch of the minute structure of this tumour is given in Fig. 3, for suggestive comparison with Fig. 1 from the Macaque.

It may seem to many that the glandular nature of these recesses is merely a question of interpretation, and not so much a question of fact; it is nevertheless a matter of some importance in dealing with the pathology of the Fallopian tube. In concluding this brief communication I submit that these recesses in the tube are as thoroughly glandular in their nature, arise upon precisely the same plan, and at the same period as those recesses of the uterine mucous membrane to which all of us, without any question, apply the term glands.

Dr. Walter Griffith was glad to find that Mr. Sutton had, by his communication that evening, acknowledged the necessity for the study of the oviducts of vertebrates as an important stage in the investigation of the presence of glands in the human Fallopian tube. Mr. Sutton must, however, first define what he meant by a gland, and, as had been suggested to Dr. Griffith by an able histologist, he should make longitudinal as well as transverse sections of the tube to prove his point. What appeared to be glands in transverse section were simply longitudinal folds.

Dr. Heywood Smith said that the point brought forward by Mr. Bland Sutton was of the utmost importance, not only from the pathological but also the physiological point of view. It tended to throw light upon the localisation of the ovum in cases of ectopic gestation. It helped to demonstrate that the oviduct being, like the uterine tissue, furnished with glands, was the real nidus of the ovum in such cases. Lastly, it indicated that so-called abdominal pregnancy began invariably as tubal pregnancy, and by rupture became abdominal.

Mr. Alban Doran had frequently referred to his remarkable case of papilloma of the tube, which was published in the 'Transactions of the Pathological Society' for 1880. It proved

that secretions from the tube issuing from a patulous ostium might cause hydro-peritoneum. A memoir on "The Relation of Hydro-peritoneum to Tubal Disease," based on this fact, was published in the 'Transactions of the Obstetrical Society' for 1886. The abundant secretion indicated glands. Mr. Doran, however, described the disease as "papilloma," because he considered it homologous to the warts seen around the labia in cases of chronic gonorrhœa. In both cases the papillary masses appeared to be not so much tumours as hypertrophy of normal tissue produced by chronic inflammation.

Mr. Bland Sutton, in reply to Dr. Griffith's remarks, said he had not shifted ground or recanted one single point from his previous communication on "The Glands of the Fallopian Tubes" in the Society's 'Transactions' (vol. xxx, p. 207). Dr. Griffith at that time urged that the evidence furnished by the oviducts in the Amphibia, the Shark, *Chimæra*, the Frog, the Tortoise, &c., should be considered. The oviducts, Mr. Sutton said, in these forms are in not a few instances richly glandular; but many years of observation among the Ichthyopsida had convinced him that any morphological theory could be proved by reference to such low and potential forms. The question of the glandular nature of the Fallopian tubes in the human female (which, by the way, were not highly specialised parts, as Dr. Griffith believed) must be settled by observations of the parts in Mammals. The greatest difficulty lay in the fact that many believed more tenaciously what they were taught than trusted to the evidence of their own senses, and it was waste of time to argue with such extremely conservative minds. Comparative anatomy, embryology, and physiology indicated most emphatically that the recesses of the Fallopian tube were not mere foldings of the tubal mucous membrane, but glands. Dr. Griffith also asked for a definition of a gland. This definition was furnished in the 'Transactions,' vol. xxx, p. 210, lines 8, 9, 10, 11, and 12.

APOPLECTIC OVUM.

By Amand Routh, M.D.

Dr. Amand Routh showed a recent specimen of apoplexy of the decidua, from a multipara aged 42. She had borne three children, the last five years ago, and had passed two "fleshy moles" since then.

When under Dr. Routh's care, in January, 1890, she had

suffered from two slight hæmorrhages, preceded by three months' amenorrhœa. The uterus was enlarged to the size usually attained at the third month of gestation, but felt hard, and there was no appreciable compressibility of its lower segment.

The patient was ordered to use iodised vaginal douches, and to report should any hæmorrhage or pain occur. For the following four months she was regular, and then passed this "mole," accompanied by much hæmorrhage. The ovum had died about the third week, and the decidua had remained quiescent till the seventh month.

UTERUS AND ADHERENT PLACENTA FROM PATIENT DYING OF POST-PARTUM HÆMORRHAGE.

By John Phillips, M.D.

The patient, aged 37, with three living children, was delivered by craniotomy a year ago in consequence of a large fibroid in the anterior wall blocking up the pelvis. Dr. Phillips measured the size of the tumour immediately after labour (the index finger being passed into the uterus), and it was apparently of the size of a cocoanut. She was warned if pregnancy again occurred to keep herself under observation. This she failed to do, and her medical attendant was called in haste to find her moribund from hæmorrhage, a full-time living child born, and the placenta closely adherent to the uterine wall. As much as possible was removed, but she died from the excessive post-partum hæmorrhage within an hour.

The post-mortem showed the uterus large, flabby, and extremely blanched. The remains of the placenta, which was situated over the site of the previously existing fibroid, were intimately adherent to the uterine wall; this was much thickened in that position, but no further trace of the previously existing tumour could be discovered. A

small intra-mural fibroid was found in the posterior uterine wall.

Dr. Phillips thought that the fibroid had undergone absorption after the instrumental labour, and had not become hypertrophied with the consequent pregnancy; indeed, that appeared to be the only explanation of the unusual course of things in this case.

SPECIMENS FROM A CASE OF PURULENT SENILE ENDOMETRITIS.

By G. E. Herman, M.B.Lond., F.R.C.P.

Dr. Herman exhibited specimens from a case having the following clinical history (from notes by Mr. P. A. Green, Clinical Clerk). A. H—, aged 65, sailor's wife. No family history of cancer or tumours. One sister was said to have died from "change of life;" her father died, aged 72, from "paralysis;" her mother, aged 50, from "dropsy;" a brother lived to 65.

Patient was always regular, except during pregnancy and lactation, till the age of fifty. She was married when aged twenty, and had nine children, the last twenty-six years ago. She had never been quite well since menstruation ceased; had suffered from rheumatism, bronchitis, indigestion, giddiness, and headaches.

In June, 1889, she began to have a discharge, at first whitish, then mixed with blood, and from the beginning offensive. This discharge henceforth continued. At the time it began she had much pain in the lower abdomen. She went to a hospital, took some medicine, and the pain diminished. For the last six months she had been losing flesh.

The patient was admitted into the London Hospital, under the care of Dr. Herman, January 13th, 1890. She was strongly built, rather spare, and somewhat anæmic.

She complained (besides the discharge and hæmorrhage already mentioned) of pain in the lower abdomen and back, and cough, which prevented her from sleeping. Her appetite was bad, and the bowels were confined.

Bronchial *râles* were heard over the chest, but there were no other signs of lung disease. No cardiac murmur could be heard. There was no abdominal swelling nor tenderness, nor any urinary trouble. The urine contained no albumen. On digital examination, the vaginal portion was found atrophied, the vagina smooth and contracted at its upper part. The cervix uteri was moveable. With the speculum the vagina was found injected, easily bleeding, and presenting spots and patches of livid redness, especially at the upper part. The cervix uteri was small, dark red, and finely granular.

January 23rd.—The patient was examined under anæsthesia. The uterus was found moveable, the body somewhat enlarged and more globular than usual; normal in position; no flexion.

The cervical canal was dilated with Hegar's dilators up to No. 10, at which point the rigidity of the cervix prevented the dilatation from being carried further. As the canal was opened up, thick, greyish-yellow pus poured from it.

Looking at the history of discharge, pain, hæmorrhage, and wasting, it was thought very probable that the disease was malignant. Considering also the opinion held by some very eminent authorities, that the purulent endometritis of elderly women tends to become malignant, it was thought that, even without proof that the condition was at present malignant, the removal of the uterus was the best treatment. This operation was forthwith done. The broad ligaments were secured with Péan's hæmostatic forceps, which were left in for thirty hours. The patient recovered without any bad symptoms, and left the hospital quite well and free from discharge and pain.

The characters of the uterus were as follows:—It was 3 inches in length. The uterine wall was $\frac{3}{8}$ of an

inch thick. Its inner surface was everywhere smooth, except that it presented a small polyp about the size of a pea. Sections were made through this polyp and the adjacent surface of the uterus, which Dr. Herman exhibited. The section of the polyp was about $\frac{1}{3}$ of an inch long and projected about $\frac{1}{8}$ of an inch into the uterine cavity. The adjoining surface of the uterus was infiltrated with round cells bearing large nuclei. The tissue so formed gradually merged into the subjacent muscular tissue. The round-celled infiltration extended roughly about $\frac{1}{30}$ of an inch deep. In it were numerous glands, most of which had been cut across, but some of which were cut lengthways. The deepest of them was about $\frac{1}{15}$ of an inch from the surface. They were lined with regular columnar epithelium, which at no point showed any tendency to change its character. There were also vessels opening on the surface of the mucous membrane. The polyp consisted of connective tissue, infiltrated with round cells, though not so closely as the mucous membrane of the uterus. In the meshes of the connective tissue were very numerous glands, the cavities of which were in size from $\frac{1}{25}$ of an inch in diameter downwards. They were lined with regular columnar epithelium, which nowhere showed any tendency to change its character; nor were there any epithelial ingrowths. There was no disease of the muscular tissue of the uterus.

Somewhat similar specimens, taken from cases having a similar clinical history, had been exhibited to the Society by Dr. Horrocks and Dr. Galabin ('Transactions,' vol. xxix, pp. 298 and 300). In Dr. Horrocks's case the question of cancer was mooted. In Dr. Galabin's the uterus was removed because it was thought to be cancer. Another similar specimen was exhibited by Dr. Matthews Duncan ('Trans.,' vol. xxi, p. 54). In this case the disease was regarded as malignant until a microscopical examination had been made.

These were the only descriptions, so far as Dr. Herman was aware, of the histology of this condition.

CARCINOMA OF THE OVARY.

By C. J. Cullingworth, M.D., F.R.C.P.

Dr. Cullingworth exhibited a soft tumour of the left ovary, removed by operation (unfortunately with a fatal result), from a single lady aged 61. A microscopic section was also shown. The uterus was enormously enlarged from fibroids, and the ovarian tumour lay behind it, deep in the pelvis. A point of interest in the specimen was that the growth had burst through the tunica albuginea, slitting that structure and forming a soft mass of new growth protruding through the rent. In spite of the enlarged uterus, the patient had not noticed any increase in the size of the abdomen until four weeks previously. At the operation thirteen pints of ascitic fluid were removed; the uterus was left undisturbed. It seemed most probable that the ascites was the result of the spontaneous rupture of the investing membrane of the diseased ovary, and the consequent irritation of the peritoneum.

No disease was observed in the peritoneum or in any other parts than those mentioned. The symptoms after operation pointed to intestinal obstruction; unfortunately, no post-mortem examination was obtained.

Mr. Shattock experienced great difficulty in cutting a section, on account of the extreme softness of the growth. The microscope showed the growth to be a rapidly-growing carcinoma, being composed almost entirely of epithelium.

DISSECTION OF A FŒTUS, THE SUBJECT OF RETROFLEXION, ECTOPIA VISCERUM, ETC.; WITH REMARKS ON THE FREQUENT ASSOCIATION OF THESE ABNORMALITIES, AND ITS CAUSE.

By W. R. Dakin, M.D., B.S.

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(Received February 6th, 1890.)

(*Abstract.*)

The specimen had been shown in its recent condition at a former meeting of the Society ('Transactions,' vol. xxxi, 1889, p. 308), when the points worthy of notice in the labour were mentioned. It was now completely dissected and described. The writer considered all the abnormalities primarily due to failure in development of the hinder part of the gut. He detailed them, and endeavoured to account for each of them as examples of the chain of ill results arising from this defective development. He came to the following conclusions:

Retroflexion and ectopia viscerum may and do occur independently. [They may therefore be associated and yet not have a common cause.]

The only way apparent in which a common cause could act is that described by Duncan and Hurry ('Obst. Trans.,' vol. xxvi), namely, by shortening or doing away with the umbilical cord, and thus keeping the abdominal surface of the fœtus applied to the uterine wall and placenta. The latter, by its close application, prevents closure of the abdomen, keeping apart the centripetally growing edges of the abdominal walls.

This common cause is failure in development of the hinder part of the gut and its processes.

He applied this theory to the present case, and considered the course of events was as follows:

1. Imperfect development of hind gut and therefore of allantois, resulting in (*a*) absence of umbilical cord, and (?) of one of the vessels (umbilical arteries) normally projected on the allantois; (*b*) interference with outflow of urine, probably at allantoic end of ureters, producing right hydronephrosis and absence of left kidney and ureter.

2. Resulting from (*a*), close application of anterior surface of fœtus to placenta and uterine wall, causing—

3. (*a*) Retroflexion, with its effects on the spine (meningocele and spina bifida occulta) at the point of flexion; (*b*) pressure-effects on the side of the body held in contact with placenta and uterine wall; and (*c*) failure of abdominal wall to close.

The subject of the present note is a fœtus which I showed in its recent condition at the November meeting of this Society. I then briefly mentioned certain matters of interest relating to the labour. The fœtus I observed was a twin of about eight months, born of a 3-para, with quite an ordinary history. It lived an hour. There was no cord, but the placenta was applied closely to the extruded viscera. It was said that there was only one amniotic cavity, but this statement was probably a mistake, and the placentæ were, I was informed, embedded in a common amnion half an inch apart. The other child was a female, and naturally formed; it was born first and lived for a few days, dying of asphyxia from no cause that could be detected at the necropsy. The two children were of the same age.

The external appearance of the fœtus now exhibited was roughly described. It was of small size for the period named, even considering that it was a twin, being but 13½ inches long.

General Appearance.—The head appeared rather large, but this was due to diminished length of the trunk owing to the retroflexion of the pelvis, which was so complete that the pubes was found a quarter of an inch in rear of

the lower end of the coccyx. There was also considerable lateriflexion to the right, and some torsion of the lower part of the trunk to the left. The integuments over the abdominal viscera were entirely absent. The anterior boundary of this region had been formed by amnion and placenta, as stated by the midwife. The heart and part of the left lung were visible outside the thorax, the diaphragm being absent. There was talipes valgus on both sides. The right arm was well formed and muscular. The left was very short, with the elbow webbed; it bore only two digits.

The external organs of generation consisted of three wart-like protuberances over the pubes. Of these, the central one appeared pervious, whilst the lateral ones represented the scrotum or labia majora. There was no harelip, cleft palate, or any other external deformity.

Among the exposed abdominal organs it was easy to recognise the several parts of the alimentary canal naturally included within the abdominal cavity, and the liver and *left* suprarenal capsule. Besides these viscera, there lay in the part corresponding to the right lumbar and

FIG. 1.—Showing heart, liver, sac containing kidney, &c., and intestines with distended colon.

iliac regions, a smooth, oval body (see Fig. 1), 1½ inches

long, and 1 inch across, with a finger-like process on its anterior surface about ¼ inch long. This body was placed behind the peritoneum covering the posterior abdominal wall. On the other side of the abdomen in the inguinal region was a pale, oval body ½ inch long, looking exactly like a fundus uteri, with a flocculent process on its outer side resembling the Fallopian tube. This body was connected with the deeper parts on its inner side by a thin white cord; it induced me to consider the fœtus a female, especially as I understood that the twins had lain in a common amniotic sac, and that the other was a female. It turned out, however, to be a male. The large oval mass on the right side was the right kidney, with the right testicle closely applied below, and the right suprarenal body on its upper surface. The left kidney was wanting.

Description of Separate Parts.

Genito-urinary Tract.—The one *kidney*, situated as above described, was very hydronephrotic, but had a pervious *ureter* which led normally into the bladder. It was not a horseshoe-kidney, and there was no trace of a second ureter. The *bladder* was normal, except in its relation to the coccyx, posterior to which it lay. A bristle, easily passed down the urethra and emerged at the central wart-like protuberance on the pubic region above mentioned. The left *suprarenal body* was about one-third the size of the right.

The finger-like process referred to above, consisted of *epididymis*. It corresponded to the flocculent body on the opposite side of the abdomen, attached to what was supposed to be the uterus, but was really the *left testicle*. Thus the *right testicle* lay immediately beneath the kidney. Both testicles had well-formed vasa deferentia, which led to the back of the bladder. The single ureter ran close to the right vas.

Alimentary System.—The alimentary canal was normal

as far as the rectum, except that there was no *vermiform appendix*. The vitello-intestinal duct was very conspicuous and about three inches in length. It ended in the remains of the yelk-sac. The *large intestine* was greatly distended and ended in a blind attachment to the coccyx, thus lying in front of the bladder, which was above and behind the pubes. The *anus* was imperforate, and consisted of a dimple an eighth of an inch deep in the normal position. From this dimple on its deeper surface was prolonged a fibrous cord which ended in a mass of fibrous tissue between the ischia, where it met the termination of the spinal cord. The *liver* was normal in appearance, but slightly altered in shape. The *spleen* was at the right side of the abdomen.

Circulatory System.—The *heart* was entirely outside the thorax owing to the deformity of the latter, as will be described. The foramen ovale was open, and the septum ventriculorum incomplete at its upper part. As the entire cavity of the thorax was constituted by what ought to have been only the right half, the vertebral column lying in the left division, the *aorta* descended on the right side of the spine, having curved over to the left and backwards in the normal manner. The left vagus and recurrent laryngeal nerves bore their usual relations to its arch. The subsequent course of the aorta was peculiar, and will best be understood by referring to the diagram (Fig. 2). Just below the level of the liver a large branch was given off, from which sprang the renal artery (3), the superior mesenteric (4), the right and left suprarenals (5 and 6), and the hepatic (7) in the order mentioned; the renal arising very close to the aorta. Almost opposite this large trunk the left common iliac (2) came off, and here it must be considered the aorta divided. This common iliac immediately crossed the bodies of the vertebræ (base of the sacrum), sent a few branches to the parts in the left iliac fossa, and was continued as the femoral. The rest of the aorta, or more properly the right common iliac artery went on, turning now to the right, to

become the one umbilical artery, previously giving off the right femoral deep down in the pelvis, and an artery to each vas deferens, with some small vesical and other branches. The *umbilical artery* ran above the level of the kidney to the amnion forming the right half of the abdominal wall, on the edge of which it ended, and where

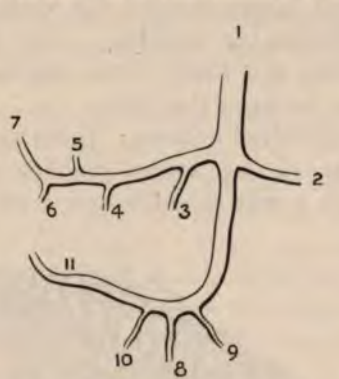

FIG. 2.—Scheme of aortic branches. 1. Aorta. 2. Left iliac artery. 3. Renal artery. 4. Superior mesenteric artery. 5 and 6. Right and left suprarenal arteries. 7. Hepatic artery. 8. Right iliac artery. 9 and 10. Right and left deferential arteries. 11. Umbilical artery.

it doubtless at once entered the placenta. The *veins* followed much the same course, the only fresh peculiarity being that the umbilical vein, instead of running along the under surface of the liver, ran to the right of that organ, sent a few branches to it, and joined the vena cava inferior just above it.

RESPIRATORY SYSTEM.—The *lungs* contained no air, and no part of these organs, excepting a small portion of the right, lay in the thorax. The larynx and trachea were normal. The *thymus gland*, a part of the right lung, the œsophagus, and the aorta occupied all the existing thoracic cavity.

MUSCULAR SYSTEM.—The muscles of the back were very ill-developed on the left side, the spine running close to the left edge of the thorax. The glutæi maximi were very small, and, in the absence of a sacrum in its usual position,

arose mostly from a tendinous median septum, but also from the first and second lumbar arches. The left rectus abdominis muscle only was present. The muscles of the legs and right arm were well developed, but in the left several were missing, owing to the absence of the ulna.

NERVOUS SYSTEM.—*Brain* and head normal. The *spinal cord* was normal in appearance, but ended opposite the body of the fifth lumbar vertebræ. The filum terminale ran back, leaving the body of the sacrum, to the mass of fibrous tissue between the ischia.

SKELETON.—*Vertebral Column:* There was a spina bifida occulta, involving the two lowest lumbar and all the sacral vertebræ in such a way that the arches of all these ver-

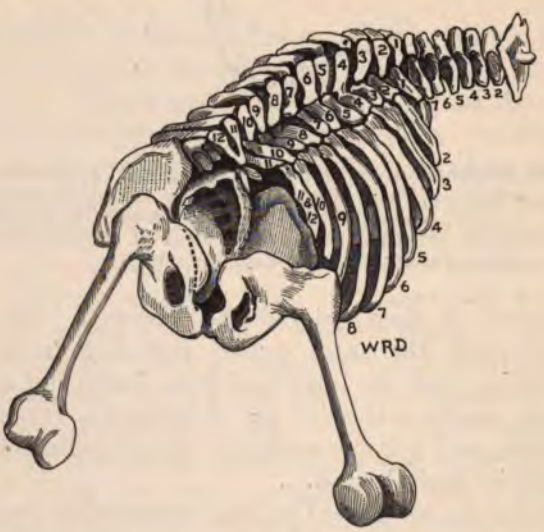

FIG. 3.—Showing arrangement of laminæ and ribs, spina bifida, approximation of ischial tuberosities, and flexion of spine. Dotted line = continuation of sacrum and coccyx.

tebræ were crowded together above, leaving the posterior aspect of the bodies exposed below. Above this mass of arches, which consisted of a solid plate of bone and cartilage, the first three lumbar vertebræ had only half-deve-

loped laminæ, the ends of which were able to come in contact to complete the spinal canal owing to the retroflexion.

The right pedicle and lamina of the twelfth dorsal vertebra were absent. The right half of the body of the same vertebra was absent, vanishing off like the point of a wedge from the left side. In the body of the ninth dorsal, the right side was undeveloped; but the arch was complete.

The left eleventh and twelfth laminæ corresponded with and met the right eleventh; the end of the tenth right did not meet the tenth left, but lay just below it; and next above the tenth left came the tip of the ninth right, and then that of the ninth left. There was thus a displacement downwards of the ninth and tenth right laminæ with reference to the corresponding left laminæ, giving a peculiar plaited appearance to this part of the spine. Above this, and up to the fourth inclusive, the ends of the laminæ lay opposite each other. The third, second, and first dorsal vertebræ had the same peculiar arrangement as the ninth and tenth, the right laminæ lying below the left.

The cervical vertebræ and skull were normal.

The *sternum* was short and very broad, but not fissured.

There were only eleven complete *ribs* on the right side. The tenth and eleventh were fused into a broad plate at their outer extremities, and the twelfth was represented by a spur-like process on the lower border of this plate. The left ribs were closely applied to the bodies of the vertebræ, winding round them (Fig. 4).

The whole spinal column curved backwards and to the right, to the extent shown in the figures, and roughly round a radius of about 2½ inches. The curve was acute in the lumbar region, where the hiatus in the roof of the canal at the level of the first three lumbar vertebræ occurred.

The pelvis was much distorted, and the distortion was due more to the relative position of the bones to one another than to malformation of individual bones. The true pelvis was practically reduced to a mere irregular

fissure between the pubic and ischial bones on each side, as the tubera ischii were almost in contact (Fig. 3) and the pubic symphysis closed. The ilia were so placed that the normally anterior internal aspect looked slightly out-

FIG. 4.—Showing shape of thorax, flexion of spine, eversion of ilia, and position of coccyx.

wards (Fig. 4), and their surfaces were convex anteriorly. When, however, the tubera ischii were separated and put in their normal position, and the innominate bones bent forwards on the sacrum, the pelvis did not appear much distorted. In the original position the acetabula looked almost directly backwards. The whole pelvis faced considerably to the left, this being due partly to the flexion of the spine in that direction and partly to the pelvic distortion. The femoral articulations were normal. The left os innominatum was a trifle smaller in every way than the right, especially in the length of the iliac crest. The right crest measured $1\frac{3}{8}$ in., the left $1\frac{1}{8}$ in. The left anterior superior spine was bent backwards more than the right, and lay more in a vertical line over the tuber ischii than on the right side. The left ala of the sacrum was rudimentary, the right being normal.

LEFT ARM.—The ulna was absent. Articulated to the radius was a carpus of three bones, presumably scaphoid, trapezium, and trapezoid; the two latter each bore a digit.

I have described this collection of deformities rather fully, as it seems to me to a great extent to carry its history and mode of production written on its features. As to its cause there are many suggestive points. In their paper published in vol. xxvi of the Society's 'Transactions,' Drs. Matthews Duncan and Hurry have fully discussed the subject of retroflexion of the fœtus. They explain this deformity in cases where there is no cord, as in the present instance thus :—"The abdomen of the fœtus is firmly held by its attachment to the placenta in the egg-shaped cavity of the uterus. The two ends of the fœtal mass, cephalic and pelvic, are pushed backwards for want of room, and flexion is on the fixed point, namely, the placenta forming the anterior abdominal fœtal wall. When the placenta is median as regards the fœtus, the retroflexion is direct—that is, without lateroflexion. On the other hand, the further the attachment of the placenta is from the median line the greater will be the lateroflexion."

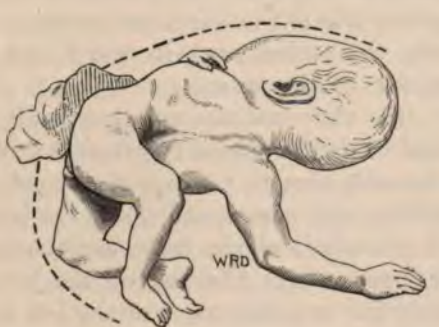

FIG. 5.—Attitude of fœtus *in utero*. Dotted line represents uterine wall.

This explanation will, I think, apply to the present case. In fact it is at once suggested on looking at the specimen in the position shown in Fig. 5 ; also in the skeleton, Fig. 4. Here it is seen that the fœtus retains the curve which the inner surface of the uterus gave to it, and shows well the effects of pressure on the side which was against the uterine

wall, namely the left. The left, no doubt, was against the uterine wall, or rather against the placenta, because a little of the right side of the abdomen was covered with a flap of skin and amnion, and the left uncovered. Unfortunately, the placenta was detached from the fœtus during labour, and was not preserved. In addition to the absence of cord, there was another factor, the presence of a twin in the uterus, tending to keep the deformed fœtus against the wall; though the effect of this last could not have been of any importance, as the pressure-effects were all on the uterine side.

These pressure-effects were:—(1) Flattening of the thorax backwards and to the right, obliterating the left half of that cavity and causing the left ribs to be closely wound round the vertebral column. (2) Incomplete development of the left arm, and all the muscles of that side of the trunk. (3) Flexion of the spine at the lumbar region to the right and backwards. (4) Flexion of the whole pelvis in the same direction. (5) Extension of the thighs. (6) Rotation outwards of the knees and eversion of the feet, the last being the easiest way in which the feet could follow the surface of the uterus.

Internally, the abnormalities were nearly all on the left side, and could be accounted for by pressure arising during the middle months, though perhaps the complete absence of the left kidney and ureter, and (?) of the left umbilical artery could not admit of the same explanation. These abnormalities were:—(1) Absence of the left umbilical artery, possibly due to compression of the left iliac against the bodies of the vertebræ when it crossed them. It will be remembered that the aorta lay to the right of the spine. (2) Transference of the spleen to the right side. (3) Small size of the left suprarenal body. (4) Expression of the left lung and collapse of the left side of the thorax. (5) Small size of the left innominate bone. (6) Absence of all aortic branches except the iliac on the left side, the left suprarenal arising from a branch on the right side. The artery to the left vas deferens rose from the right iliac.

The kidney and the abnormality of the gut will be considered later on.

The rectum, supposing it to have been normal, would have been unable to join the anal involution, for the site of the anus was carried far back with the pelvis. The testicles were prevented from descending by the absence of inguinal canals, and by the great disturbance in the pressure of the abdominal walls and the relations of the viscera.

Ahlfeld, Förster, Vrolik, and Houel mention and comment upon the association of retroflexion and ectopia viscerum, and they all have conjectural hypotheses on the subject. The conflicting opinions and theories of these four authorities require some consideration.

Ahlfeld ('Die Missbild. des Menschen,' Pt. 2, p. 201) believes that the vitelline duct may persist and remain firmly attached to the intestine. Then, in case of sudden increase of amniotic fluid, the duct drags on the coil of gut found in the base of the cord up to the third month, prevents its recession into the abdomen, and may gradually drag out the whole abdominal contents. This traction acts through the mesentery on the spine, dragging it forwards and causing retroflexion.

Förster ('Missbild. d. Mensch.,' p. 110) says that it is due to two causes. (1) The absence of abdominal wall and abdominal contents leaves the spine unsupported in front, and it therefore bulges forwards. (2) The weight of the same contents tends to drag the vertebræ forward also.

Vrolik ('Tab. ad illustr. embryogen.,' pl. 21 and 22) considers that the association is due to the last-mentioned cause.

Houel ('Soc. de Biolog.,' 1858, iv, p. 55) reverses the order of causation. He is of opinion that the bending backwards of the trunk so diminishes the thoracic and abdominal cavities that they are unable to hold their natural contents. He considers the shortness of the cord to be the primary fault.

(The opinions of the last two authorities are quoted from Duncan and Hurry's paper.)

It is impossible to accept the suggestions of Ahlfeld, Förster, and Vrolik. They produce no facts to prove that such forces as they mention are in action. These alleged forces are dragging of the viscera forwards by their weight or by the vitelline duct, and the tendency of the spine to bulge forwards if the abdominal organs be not applied to it. Supposing that part of the intestine were dragged forward to any extent, it is the mesentery which would give way, or the intestine would be ruptured (as, it is said, sometimes occurs) before the hæmal concavity of the embryo could be inverted.

The matter is different if the fault lie in the allantois, assuming this to be an organ projected from the hind gut, as is usually taught. This has a fixed attachment to the solid parts at the tail-end of the embryo. If the skeleton of the present example be examined, it will be seen that the sacrum and coccyx have kept well to the front, and that the yielding has taken place mainly at the sacro-iliac joint.

Against Houel's hypothesis the case of retroflexion caused by amniotic bands, figured and described in the aforesaid paper, is evidence, there being no protrusion of viscera.

In the specimen of retroflexion in a tenth-week embryo described by Mr. Lockwood ('Trans. Obst. Soc.,' vol. xxix), there is no protrusion. The deformity in this last case is due to absence of medulla spinalis and consequent restricted development of the dorsal side of the embryo. It seems, therefore, that retroflexion and ectopia may occur independently, though they are as a rule associated. To some independent cause, as in the above cases, must be attributed examples of retroflexion when the cord is sufficiently long.

In the present specimen there was probably a common cause, and the case would be most simply explained by some deficiency in development of the hind gut and its

processes. This, it will be remembered, was so far abnormal that the rectum ended blindly, being attached to the tip of the coccyx.

In a paper on the development of some parts of the vascular system ("Early Development of Pericardium, Diaphragm, and Great Veins," 'Phil. Trans.,' vol. clxxix [1888], B., p. 365) Mr. Lockwood has shown that the formation of the umbilical veins, at all events, is independent of the allantois. He believes that the latter structure in rabbits, and probably in man, does not grow, as in the chick, in the shape of a vascular protrusion from the hind-gut, but that the extension of the hind gut into the fœtal placenta is a process of inclusion and not protrusion. According to him, the fœtal placenta is formed out of a portion of the caudal end of the embryo which never becomes detached from the endometrium. The cord is then developed by lengthening of the bridge of tissue, vessels, part of included portions of hind gut, &c.

If this method of development of the placenta and cord be accepted, it is easy to understand how the abdominal surface of the fœtus was kept in close contact with the uterus. The structures forming the cord failed to develop to their usual extent, and thus prevented the closure of the abdomen. The right umbilical artery only could be found, the absence of the left being due either to original failure to develop, or to absorption from pressure on the left side. The right kidney was hydronephrotic, probably through obstruction to outflow of the urine. The left kidney and ureter were absent, having perhaps been absorbed owing to complete obstruction at the allantoic (bladder) end of the ureter at a very early period. Mr. Bland Sutton has described a fœtus ('Trans. Path. Soc.,' 1888) in which there were several malformations of the alimentary tract, associated, as they frequently are, with spina bifida. He, in common with other observers, is of opinion that the spinal cord is to be regarded as a highly differentiated section of the primitive alimentary tract, and that the almost constant association of defects in the two

systems is thus explained. (See also Prof. Hamilton's recent address to the Philosophical Institution of Edinburgh on "The Development of the Nervous System.")

The present case was the subject of spina bifida occulta in the lumbar and sacral regions, and of failure of union in several other vertebral arches, as described. There was also a cord extending from the dimple representing the anus to a mass of fibrous tissue between the ischia, in which mass the spinal cord also ended. It is therefore possible that the origin of the spinal malformation had an intimate connection with the origin of those of the alimentary tract. On the other hand, in this particular case, as the spina bifida occurred at the point of flexion, it might have been due to defective development of the arches from their being vertically compressed owing to the concavity at this point, where a meningocele probably formed. This seems more likely from the appearance of the upper boundary of the hiatus, where there was a solid tunnel formed of impacted arches, the mass of fibrous tissue between the ischia being possibly the remains of the meningocele sac.

It might further be said that the spina bifida was an expression of an abnormality in the spinal cord which gave rise to the imperfect left arm and the talipes. Against this theory is the fact that the spinal cord showed no sign of cystic dilatation at any part, and was quite normal at the split, which was therefore due almost certainly to meningocele and not myelocele. The former is a commoner cause of this deformity than the latter.

The displacement on one another of opposite halves of the vertebral arches higher up was doubtless due to the flexion.

The fœtus described by Mr. Hodges at the last December meeting of the Society displayed deformities similar to those which may be seen in the present specimen. The dissection of that fœtus would have proved most instructive in connection with the subject of this paper. Mr. Hodges kindly tried to obtain it for me, but was, unfor-

tunately, unsuccessful. In addition to other malformations, the fœtus was, it will be remembered, anencephalic.

Conclusions.—The following conclusions are offered: Retroflexion and ectopia viscerum, although as a rule associated, may occur independently. They may, therefore, be associated and yet not have a common cause.

The only apparent manner in which a common cause could act is that described by Duncan and Hurry, namely, by shortening or absence of the umbilical cord, the abdominal surface of the fœtus being thereby held fast to the uterine wall and placenta. The latter by its close application prevents closure of the abdomen, keeping apart the centripetally growing edges of the abdominal walls.

This common cause is failure in development of the hinder part of the gut and its processes.

To apply this to the present case, the course of events was probably as follows:

1. Imperfect development of the hinder part of the gut, and therefore of the allantois, resulting in (*a*) absence of the umbilical cord, and (?) of one of the vessels (umbilical arteries) normally projected on the allantois; (*b*) interference with the outflow of urine, possibly at the allantoic end of the ureters, producing right hydronephrosis and absence of the left kidney and ureter. Resulting from (*a*), close application of fœtus to placenta and uterine wall: causing (*a*) flexion with its effects on the spine (meningocele and spina bifida occulta) at the point of flexion; (*b*) pressure effects on the rest of the body; (*c*) failure of abdominal wall to close.

Mr. Alban Doran sincerely hoped that Fellows of the Society would imitate Dr. Dakin and bring forward carefully prepared papers on special cases of monstrosity, or, better still, on some entire class of monster. The Society offered particular advantages for the demonstration and publication of material of this kind which otherwise would be lost, for observers could not be expected to publish teratological essays at their own expense. Teratology, a very important but in certain respects unprofitable science, had been left too much to the French and Germans. The Society was in a position to wipe away that reproach.

A CASE OF SPURIOUS PREGNANCY SIMULATING ECTOPIC GESTATION.

By E. Sinclair Stevenson, F.R.C.S.E., &c.,
RONDEBOSCH, CAPE TOWN.

(Received November 21st, 1889.)

Mrs. S—, aged 24, 3-para, three abortions, last child born in April, 1888. A healthy, generally bright person, and not in any way nervous nor hysterical.

She menstruated last in September, 1888, and from that time she concluded that she had become pregnant. She felt then as she had always felt when in that condition on previous occasions.

In January, 1889, she says that she had severe pains and a bloody discharge, and thought that she was going to miscarry, but she got over this attack, and quickened at the expected time.

In April the movements of the fœtus were distinct. This statement was corroborated by her husband, sister, and friends who saw her. The abdomen was enlarged and the breasts much developed.

In April labour began, and the patient sent for a midwife. The pains continuing for three days, a medical man saw her. Towards the end of the third day she passed from the vagina what she called a "piece of skin." The medical man present saw it, and instructed the nurse to send it to his house, but his order was neglected. His impression at the time was that the case was extra-uterine pregnancy.

The bearing-down pains passed away, and with them the fœtal movements gradually diminished. The next day she had a profuse discharge, and the abdominal swelling

rapidly disappeared. The breasts were secreting milk. From that date she felt ill, having constant pains, and suffered from a muco-purulent discharge.

At the end of July I saw her. She was then complaining of weakness and pain, and had shivering fits and night-sweats. Her temperature when taken was normal. She looked worn, but not very ill, and was unable to walk or stand without much pain.

External Examination.—In the right side there was a swelling the size of a large fist, moveable, and changing its place according to the position the patient occupied. The abdomen was generally tender.

Vaginal Exploration.—Os large and patulous, admitting the index finger as far as the internal os, pointing anteriorly. In the right fornix a soft mass could be plainly felt. The uterus was retroverted and free from adhesions. The uterus was rapidly dilated and the cavity carefully examined.

The diagnosis of an interstitial gestation with rupture at the fourth month into the broad ligament was made. On account of hectic symptoms an operation was advised. The patient was admitted into my private hospital. On August 14th she was operated upon, and an ovarian cyst of the left side was found and removed. The viscera were normal. The patient very soon recovered.

Remarks.—I think that I may be excused this diagnosis. I had before me a chain of evidence, the links of which taken singly or collectively led me to give this erroneous opinion.

All the symptoms of pregnancy, based on an experience of six gestations, of which three came to full term, were here present. Very clear signs of ectopic gestation were at hand, and finally these two classes of symptoms were complicated by a spurious labour. The only explanation that I can give of the above case is that some cause led the patient to think that she was pregnant at the time when the tumour was first noticed; that the tumour grew at a pace equal to that of a fœtus in normal gestation,

and imagination would do the rest. At full term spurious contraction took place and the thin-walled cyst burst.

At the time of the operation I carefully, but in vain, looked for symptoms of previous rupture. One question I should like to be answered by the Fellows of this Society. May a cyst which has burst fill again and show no signs of former rupture, such as adhesions and other inflammatory products?

Dr. MATTHEWS DUNCAN, in response to the question in the paper, said that he had long ago published a case in which an ovarian cyst of large size was spontaneously evacuated through the uterus. Subsequently, after refilling, ovariotomy was performed, and then no trace of connection between the cystoma and the tubes or uterus could be found. But he had seen even more remarkable instances of repair of analogous kind. A woman waiting for ovariotomy had a large perimetric mass high behind the cervix uteri. It burst and discharged pus and fæces in large quantity. The finger could easily pass through the roof of the vagina into the fæcal abscess. It soon healed, and in less than three weeks after the healing ovariotomy was performed successfully. At the operation search was made, but no trace of connection between bowel and vagina could be found; there were no adhesions in the region of the vaginal roof.

Dr. HORROCKS mentioned the case of one of his surgical colleagues which he had examined. Just before the operation of ovariotomy was undertaken the patient was seized with sudden pain and collapse. She rallied, and in a few days the tumour had almost vanished. Dr. Horrocks again examined, and felt the collapsed cyst, which had evidently ruptured, pouring its contents into the peritoneal cavity, from which the fluid was absorbed. In a few weeks the cyst refilled, abdominal section was performed, and the tumour was removed. At the time of the operation there was no evidence of any recent peritonitis, neither could there be found any scar upon the cyst-wall.

FEVER IN CHILDBED.

Part I.—General Hygiene and Antisepsis.

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Abstract.

I. *The general fever-rate and septic rate of the General Lying-in Hospital during the last seven years; marked decline.*

In the first part of this paper the factors which bear universally on the subject are alone considered; particulars pertaining to individual cases, such as the general condition of the patient and the character of the labour, are not included. In such an extended series as that now presented, these items are distributed with such approach to uniformity as to render the omission a matter of little importance.

A series of charts and tables are appended which deal with the 2762 puerperæ who have been delivered in the General Lying-in Hospital during a period of seven years, from July, 1882, to June, 1889, inclusive.

The figures upon which Charts I, II, and III are constructed are given in Table I. The readings are all taken from the base line.

By this means it will be proved—

(1) *That the proportion of cases affected with fever declined rapidly and then became steady, but has since diminished slightly.*

(2) *That this decline has in the main resulted from decrease in and temporary abolition of cases affected with septicæmia and pelvic inflammation.*

(3) *That in the febrile cases both the duration and the height of the fever have diminished.*

(4) *That these changes are identical in point of time with certain changes effected in the hospital service.*

Chart I gives the total number of patients admitted, the number of cases in which the temperature rose above 100° F., the number of patients who were affected with septicæmia and pelvic inflammation, and the total average daily amount of fever from all causes (estimated in increments above 100° F.) for each month.

This shows: an increase in the number of admissions, a decrease in the number of febrile cases and particularly of septic cases, and a diminution in the amount of fever not only relative but absolute.

But as the number of patients admitted month by month varies so considerably as to render comparison of one month with another a matter of difficulty, separate charts based on percentages are also appended.

Chart II is divided into four parts:

The *first division* gives the percentage of patients in whom the temperature rose above 100° F. and the percentage of patients who were affected with septicæmia and pelvic inflammation.

This shows: that of the whole number of patients delivered in the hospital before and after May, 1884, *a drop occurred from* 83 *per cent. to* 40·6 *per cent. in the cases followed by fever, and from* 40 *per cent. to* 2·5 *per cent. in the cases followed by septic fever; and, further, indicates an improvement in both respects in the months which immediately precede that date.*

The *second division* gives the average daily percentage of patients in hospital with pyrexia and with septicæmia and pelvic inflammation.

It will be observed that this division of the chart takes into account both the proportion of febrile to non-febrile cases and the duration of the fever, and also the proportion of septic to non-septic cases and the duration of the fever with which they were associated.

This shows: in comparing all the cases before and after May, 1884, *a drop from* 39 *per cent. to* 8 *per cent. in the daily propor-*

tion of cases in hospital with fever, and from 27 *per cent. to* 1·6 *per cent. with septic fever; and, further, indicates an improvement in both respects in the months which immediately precede that date.*

The *third division* gives the average duration of the fever in days.

This shows: in a comparison of all the febrile cases before and after May, 1884, *that the duration of the fever was reduced from* 7·7 *to* 3 *days, together with some improvement in this respect also in the months which immediately precede that date.*

The *fourth division* gives the average height of the fever in degrees above 100° F.

This shows: an average reduction in the height of the temperature dating from May, 1884, *of very nearly* 1° *F., but no appreciable improvement in this respect in the months which immediately precede that date.*

Considered as a whole, Chart II proves—

That not only has the proportion of febrile to non-febrile cases diminished, but also the proportion of septic to non-septic cases has at the same time still more markedly diminished, that for months together such cases have entirely disappeared, and that simultaneously the duration of the fever has been shortened and its height diminished.

Chart III expresses these results in a condensed form.

It gives in outline only (white on black ground and *vice versâ*) the average amount of pyrexia from all causes per patient (in days × degrees above 100° F.). It will be observed that, being the product of the first, third, and fourth divisions of the preceding chart reduced to unity, it takes into account not only the proportion of febrile to non-febrile cases and the duration of the fever, but also the height of the temperature; and therefore, as an index of the condition of the hospital for each month, is not to be surpassed. But as it often happened that patients admitted towards the end of one month had little or no fever until the following month, and that when the attack was prolonged the fever was continued into the month following admission and even later, this line only represents approximately the fever-rate for each patient admitted during the month to which it refers. It has there-

fore been placed under the heading of "*Approximate fever-rate.*"

The *True fever-rate, i. e.* the average amount of pyrexia from all causes (in days × degrees above 100° F.), for each patient admitted during each month is given.

This shows: that each patient admitted averaged as much as 17 *degrees of fever during the puerperium before May,* 1884, *but only* 1 *degree after that date; and, further, that the amount was considerably reduced in the months which immediately precede that date.*

It may be noted that the *True* and *Approximate fever-rates* very nearly coincide when the cases of severe and prolonged illness are few.

The *septic rate, i. e.* the average amount of pyrexia due to septicæmia and pelvic inflammation (in days × degrees above 100° F.), for each patient admitted during each month is also given.

This shows: that each person admitted averaged as much as 13 *degrees of fever from septicæmia and pelvic inflammation alone during the puerperium before May,* 1884, *but less than half a degree after that date, the amount being often reduced to zero or to a fraction of a degree for months together; and, further, that the amount was appreciably reduced in the months which immediately precede that date.*

This chart further demonstrates—

(1) *That the decline in the general fever-rate has in the main resulted from decline in the septic rate.*

(2) *That though occasional slight rises have occurred during the last five years, the general tendency has been towards improvement not only in the general fever-rate, but also in the septic rate, and that when the general fever-rate has risen it has in the main resulted from increase in the septic element.*

I PROPOSE on the present occasion to cast my glance backwards from the eminence of the General Lying-in Hospital, over the table-land of the puerperal state, and would invite you to survey with me the subject of fever in childbed by means of a series of thermometric observations which have been carried on continuously during the last

seven years, and which, for purposes of comparison, are now presented in a collective form for each month (pp. 235A, B, C, D).

This subject is one which has engaged much attention, and deservedly so. Yet several points connected with it still remain open to debate. It is a subject on which sufficient has been written to form a library in itself, but I shall not attempt to catalogue the works which bear upon it.

In 1884 Dr. E. S. Tait reviewed the subject from the same position as that upon which I now stand, having in the latter half of 1882 recorded a series of borings through the different strata of the puerperium. In a valuable paper read before the Society, and entitled "Some Observations on Puerperal Temperatures," he drew attention to various factors which are operative in the production of fever in childbed, and more especially to the influence of traumatism, of forceps delivery, of intra-uterine manipulations, and of emotional display. Since that time, however, the nature of the ground, as it is my present intention to show, has altered considerably—so much so, indeed, that I trust it will soon be possible to clear up some at least of the ambiguous points connected with that part of the question.

In the first part of the present paper it is my intention to deal with conditions which bear universally on the subject, rather than with the peculiarities of individual cases—to take a broad survey rather than make a minute inspection. For though it is quite true that the cases might be divided up into particular classes, after the method adopted by Dr. Tait, each of which may be shown to possess its own particular bearing on the incidence of fever in childbed, in such an extended series as that now presented these classes become broken up and distributed with such approach to uniformity as to render the omission a matter of little importance. In a subsequent part of the paper I hope to show the bearing of such particular classes on the same subject.

I propose, in the first place, to present a critical examination into the state of the hospital with the aid of the appended tables and charts; in the second, to recite the means by which the present satisfactory state of the institution has been attained and is still maintained; thirdly, to relate such accidental experiences, in addition to the alterations purposely introduced into the service, as may have affected the condition of the hospital; and finally, to suggest the lessons to be derived from these various considerations.

It may, however, be advantageous if in this place, and before proceeding to discuss the different sections of the paper in detail, I briefly review the history of the hospital during the last few years.

In the years which preceded the routine employment of antiseptics the amount of illness, and especially of septic illness, must have been very grave, for the death-rate (the only available guide to the condition of the hospital at that time) was invariably high, but presented great variations and often indicated an appalling mortality.

Then the antiseptic régime dawned, carbolic acid and Condy's fluid were regularly employed. Under this régime the death-rate declined considerably, and on the whole remained steadier. Cases of illness and especially of septic illness were, however, always present to a greater or less degree, but varied within wide limits, both as regards frequency and severity.

During the last few months of this carbolic and Condy era a steady and appreciable improvement took place, and in a marked degree with regard to the cases of a septic nature. This was due in part to the improved method of dealing with the antiseptic agents and to the means taken to prevent their mutual destruction, and in part to a more systematic attention to points of general hygiene, particularly as regards the midwives and nurses.

When subsequently carbolic and Condy were replaced by sublimate a further improvement was effected, and septicæmia disappeared entirely, at any rate for a time

(the instances of its recurrence being few and, as a rule, far between and of slight intensity). The death-rate fell in a remarkable degree, and from that date until the present time the instances of illness have, generally speaking, been slight and unimportant, and in great part of an accidental character, whereas septicæmia has figured rarely.

Nevertheless, during the sublimate era three cases have died from the effects of septic infection; one in the short period during which douche-solutions of weak sublimate were employed, and the remaining two in another short interval, during which the sublimate douche was replaced by salufer. During this period also the other instances of illness suffered appreciable increase.

Several examples of the introduction of zymotic poison have occurred, both during the time that septicæmia was still rampant and also since it has been practically stamped out. A single occurrence of erysipelas during the first period was attended with a striking increase of illness in other patients, which, if not absolutely identical with, was indistinguishable from septicæmia in its clinical aspect. Scarlet fever several times occurred both before and after the elimination of septicæmia, and was attended during the first period with a slight but suggestive increase in illness of a similar septic nature, but during the second was, as already stated, productive of no appreciable ill-effect beyond giving rise to cases of a more or less typical scarlatinal type. And finally, neither typhoid fever nor measles, a single instance of each of which occurred during the first period, seem to have produced any such effect.

Individual instances of the injurious effect of foul air were now and again observed, but since the winter 1882-3 no general increase in the amount or severity of illness has occurred during the winter months as compared with the summer.

These points will be considered in detail in the various sections of the paper. Part I will be devoted to the effect of general hygiene and antiseptic precautions; Part II

to the influence of zymotic poisons and of atmospheric changes.

The accompanying charts extend over a period of seven years, from July, 1882, to June, 1889, inclusive. They deal with no less than 2762 puerperæ who were delivered in the General Lying-in Hospital, under the care of Dr. John Williams, Dr. Champneys, Dr. Herman, Dr. Cullingworth, and myself.

Certain sections of this period I would mention in particular. The first of these comprises the six months ending December, 1882, during which Dr. Tait carried out his observations. The second extends from September, 1883, to December, 1884, inclusive, when, as house physician, under the direction of Dr. John Williams and Dr. Champneys, I was enabled to make special observations on the course of the puerperium. The condition of the hospital at this time was treated of in some measure in my communication on "Scarlatina during Pregnancy and in the Puerperal State," in which the position of scarlatina as a cause of fever in childbed was discussed. The third and fourth sections cover the last six months of 1886 and 1887 respectively. These last I propose to utilize on a subsequent occasion in considering more particularly the less severe forms of fever in childbed.

Through the courtesy of my late colleagues and of my successor I have been enabled to fill in the spaces between these sections, and to present uninterrupted charts for the whole seven years.

The result is instructive as showing the great improvement which has taken place in the condition of the hospital within this period. For during the first eighteen months the condition of the hospital generally may be described as one of high and persistent fever, varying much in amount, it is true, but still persistent. Then came a period of gradual but steady decline, extending over some six months. Into the cause of this I shall enter presently. May, 1884, marks an important epoch in the hospital's history. At that time (as I took occasion to point out in

speaking on Dr. Dakin's paper on mercurialism read before this Society in 1886) a decided improvement occurred. Since that time, with the exception of occasional slight relapses, a steady convalescent state has been maintained. These relapses will also call for special comment.

The figures upon which Charts I, II, and III are constructed are presented in a tabular form for purposes of reference (see *Table I*, p. 235D). The readings are all calculated from the base line.

By this means it will be proved—

(1) That the proportion of cases affected with fever declined rapidly, and then became steady, but has since diminished slightly.

(2) That this decline has in the main resulted from decrease in and temporary abolition of, cases affected with septicæmia and pelvic inflammation.

(3) That in the febrile cases both the duration and the height of the fever have diminished.

(4) That these changes are identical in point of time with certain changes effected in the hospital service.

Chart I (p. 235A) deals in the first place with the total number of patients admitted (indicated by a fine continuous line), and with the number of patients who suffered from pyrexia (indicated by a dotted line).

The close approximation of the dotted to the thin continuous line during the first eighteen months shows the small number of patients who escaped pyrexia. The subsequent separation of one line from the other indicates the great improvement which afterwards occurred. Further, the persistent rise in the fine continuous line denotes the increasing number of patients admitted to hospital since the improvement took place.

In the next place the number of patients who were affected with septicæmia and pelvic inflammation is given (indicated by a thick continuous line). This line closely coincides in its variations with the dotted line, declines with it, and after the first eighteen months at times entirely disappears.

This shows the decrease in the number and ultimate disappearance, of septic cases, sometimes for months together.

Lastly, the total average daily pyrexial rise—that is to say, the number of degrees of fever (estimated in increments above 100° F.), for distribution among all the patients in hospital—is also given (indicated by a broken line). This line is found to follow the declension of the dotted curve, and, while nearly approaching the fine continuous line in the early months, to separate from it very widely afterwards.

This shows a diminution in the amount of fever, not only relative, but absolute.

Turning now to the figures given in the table (p. 235D), and taking by way of example December, 1882, it is found that twenty-six patients were admitted, of whom twenty-five had fever,—all but one—and that of this number eighteen had fever from septicæmia and pelvic inflammation alone; and that on an average there was distributed among the patients a massed daily amount of fever of close upon 19 degrees. Now, by way of comparison, take December, 1884. During this month thirty-five patients were admitted, of whom only four had a rise of temperature above 100° F., one being attributable to septicæmia or pelvic inflammation, and the massed daily amount of fever distributed among them was little more than half a degree. Such figures as these tell a very striking tale.

Briefly, then, Chart I shows an increase in the number of admissions, a decrease in the number of febrile cases and particularly of septic cases, and a diminution in the amount of fever, not only relative, but absolute.

But, as will be gathered from the table, the number of patients admitted month by month presents such considerable variation as to render comparison of one month with another a matter of difficulty. Instead, therefore, of resting content with the crude figures, I have constructed a separate series of charts based on percentages.

Chart II (p. 235B) is divided into four parts.

The FIRST DIVISION gives the percentage of patients in

which the temperature rose above 100° F., and the percentage of patients who were affected with septicæmia and pelvic inflammation.

In each case the temperature was taken (by mouth) throughout the patient's stay in hospital every four hours, night as well as day unless she happened to be asleep, and any rise above 100° F. is reckoned as fever. And wherever the line joining two consecutive observations crosses any section of the chart above this level, that section is included in the fever category, as if observations had been made continuously in every part of that line.

I may take occasion here to point out that had the thermometer been employed less assiduously a large proportion of the pyrexia cases would have been eliminated, whereas, under the plan adopted, are included all the slight transitory rises of temperature (to 100·2° or thereabout) which, though indicated by the thermometer, are as a rule unattended by appreciable symptoms of illness. These, indeed, form by far the larger portion of the pyrexia cases which have come under observation during the last five years dealt with in the charts.

Unless this fact be taken into consideration, the improvement as indicated by the first division of Chart II would be greatly discounted. For it represents the percentage of puerperæ who had pyrexia without taking into consideration either the height or the duration of the fever, and therefore are included all those slight transitory rises to which I have alluded.

But, even taken as it stands, a marked improvement is manifest.

For during the first eighteen months the number of deliveries followed by pyrexia generally exceeded 70 per cent., and often reached as high as 96 per cent. During the first four months of 1884 the figures declined from 81 per cent. to 65 per cent. Then occurs a remarkable drop, and from that time onwards 50 per cent. is rarely exceeded. In general terms it may be said that prior to May, 1884, 83 per cent. of the patients confined had some

rise of temperature above 100° F. during the puerperium, but that after that date 40·6 per cent. were similarly affected—in other words, that the number of labours followed by pyrexia was more than halved.

But, in addition, the first division of Chart II gives the percentage of patients who were affected with septicæmia and pelvic inflammation.

This shows that during the first eighteen months the proportion of deliveries followed by septicæmia and pelvic inflammation, though varying greatly, never fell below 22 per cent., and reached as high as 69 per cent., but during the first four months of 1884 declined from 31 per cent. to 10 per cent. Of the whole number of patients delivered in the hospital before May, 1884, no less than 40 per cent. were attacked with septicæmia and pelvic inflammation, compared with less than 2·5 per cent. after that date.

And here I may take occasion to mention that a certain amount of doubt necessarily attaches to the septic data, owing to the difficulty in deciding as to the precise cause of the fever in some of the cases. But as this difficulty occurred mainly in the early months, and applies chiefly to cases of slight intensity—to cases of sapræmia,—I have no doubt in my own mind that, even when allowance is made for some of the fever from other causes being masked by septicæmia, and consequently included in that category, the improvement under this head was actually rather greater than is shown in the chart. It may also be noted that all cases which presented signs of inflammation in the pelvis, whatever view may be held as to the nature of such in individual instances, are included in the septic category. At the same time I may add that no doubt whatever attaches to the general-pyrexia data, which are based on facts involving no diagnostic skill.

The SECOND DIVISION gives the average daily percentage of patients in hospital with pyrexia, and with septicæmia and pelvic inflammation.

A moment's reflection will show in what respect this

differs from the preceding division. In the first division the percentage of patients who were affected with fever and with septic fever was alone represented; but this, representing, as it does, the average daily percentage of patients in hospital suffering from pyrexia, takes into account not only the proportion of febrile to non-febrile cases, and of septic to non-septic cases, but also the duration of the fever. And, as I shall presently show, simultaneously with the diminution in the number of fever cases, the duration of the pyrexia in such cases as were affected with fever became considerably less. The net result, therefore, as given in this division of the chart, is correspondingly greater—the improvement which took place appears to still greater advantage.

On reference to the table (p. 235D), it will be seen that during the first eighteen months the average daily number of patients in hospital suffering from fever generally exceeded 30 per cent., and was often as high as 50 per cent.; that during the first four months of 1884 the corresponding figures declined from 32 to 20 per cent., and that subsequently 10 per cent. was seldom exceeded. True, the drop does not appear so striking, because some of the patients admitted during April carry their days of fever into the following month. Nevertheless the rapid fall is suggestive.

In general terms it may be said that prior to May, 1884, the daily number of patients in hospital who were affected with pyrexia was 39 per cent., against 8 per cent. after that date; or—to put the matter in another way—this date forms the boundary line between an attack of fever extending over more than a third, and a pyrexial attack lasting less than a twelfth part of each patient's stay in hospital.

The improvement in this respect is emphasized by the fact that, originally, more often than not it was found necessary to keep the patient in hospital for some time after the fortnight had expired, in some cases for perhaps 30, 40, or even as much as 50 days, too ill to be moved;

but now for a patient to receive her discharge at a later date than the fourteenth day has become quite the exception. Moreover, in order to guard against the possibility of any illness being overlooked, every patient on leaving the hospital is provided with an addressed post-card to be returned at the end of a month.

In this division of the chart, also, the average daily percentage of patients who were affected with septic fever is separately represented. The daily number of patients in hospital suffering from septic fever before May, 1884, averaged 27 per cent. of the whole (the number varying during the first eighteen months within 10 per cent. on either side of that amount), against 1·6 per cent. after that date, when the curve exceeded 10 per cent. in one month only (and that happened in May, 1884, from illness contracted during the previous month), and often for months together remained at zero. In this respect also the improvement is well marked at the beginning of 1884.

The THIRD DIVISION gives the average duration of the fever in days.

This is calculated for the cases of febrile illness only, not for the total number of patients. The shortened duration of the fever is here separately represented.

Before May, 1884, cases of fever usually persisted for at least five and often as much as ten days, but after that date the average never exceeded five days, and as a rule was much below. Speaking in general terms, therefore, it may be said that fever which originally persisted for at least a week now ceased at the end of three days. In this respect also some improvement is seen to have taken place during the months which immediately precede the above-mentioned date.

But the proportion of febrile to non-febrile cases and the duration of the fever as yet have been alone taken into account. It remains to consider the height of the fever.

The FOURTH DIVISION gives the average daily rise of temperature for each pyrexial patient.

Here, again, a corresponding improvement is manifest, amounting to a reduction of nearly 1° F. For during the months which precede May, 1884, the fever ranged from 102° to 103°, but after that date rarely reached 102°; and, in fact, declined from 102·5° to 101·6° F., as given by the collective averages for each period. No appreciable improvement in this respect is observed during the months which immediately precede that date.

Each division of Chart II, then, is seen to agree in pointing to an improvement dating from May, 1884; and, further, shows that this improvement took place to some extent in the months which immediately precede that date.

Considered as a whole, Chart II proves—

That not only has the proportion of febrile to non-febrile cases diminished, but also the proportion of septic to non-septic cases has at the same time still more markedly diminished, and for months together such cases have entirely disappeared; and that simultaneously the duration of the fever has been shortened and its height diminished.

Chart III (p. 235c) expresses these results in a condensed form.

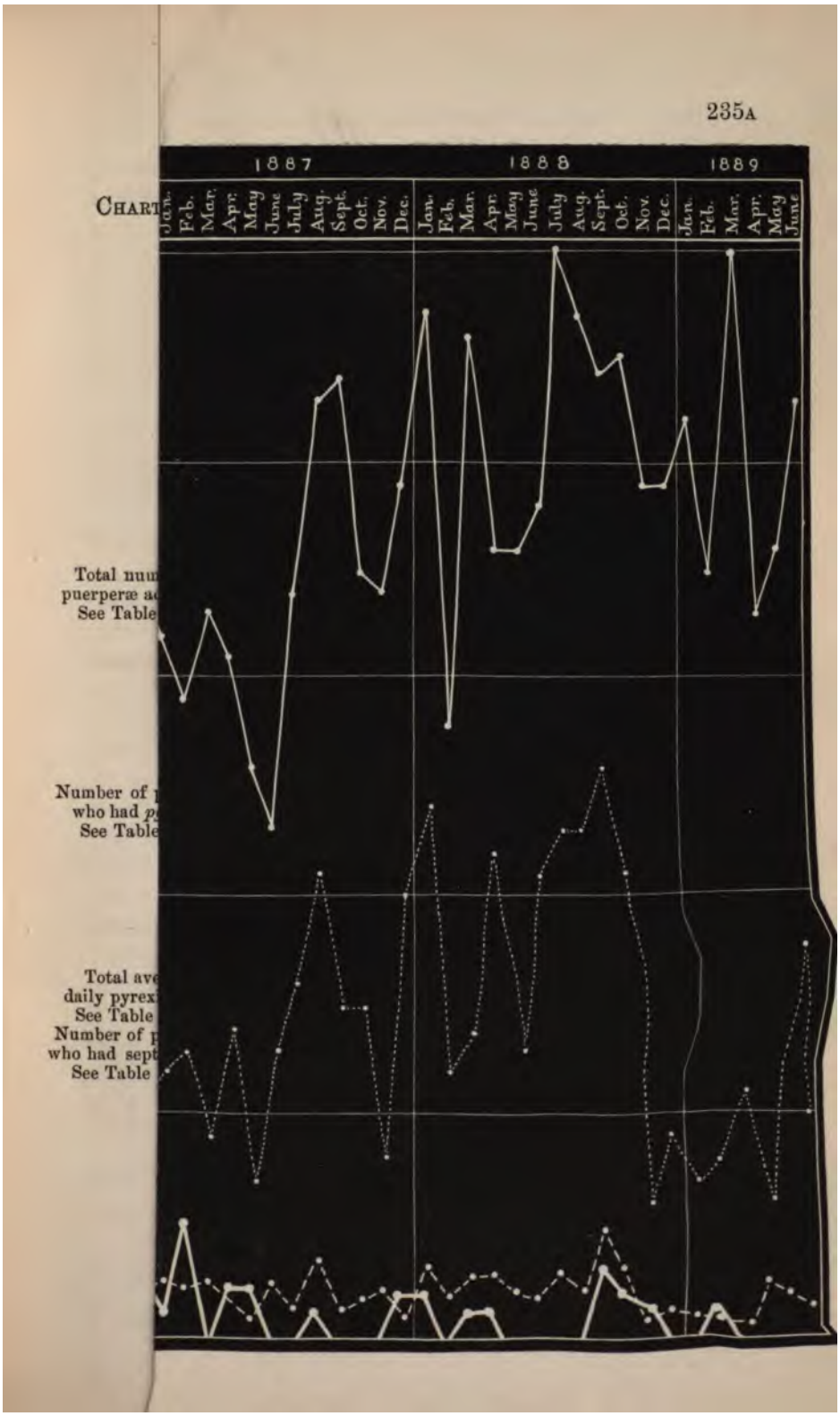
By multiplying together the percentage of labours followed by pyrexia, the duration (in days), and the height (in degrees above 100° F.) of the fever, it is possible to present a fairly correct index of the condition of the hospital for each month throughout the seven years. By moving the decimal point two places to the left the average amount of pyrexia from all causes per patient is derived. The figures thus obtained are very instructive. By this means the variations which occurred are presented in an amalgamated form. For, being the product of the first, third, and fourth divisions of the preceding chart reduced to unity, it takes into account not only the proportion of febrile to non-febrile cases and the duration of the fever, but also the height of the temperature, and therefore, as an index of the condition of the hospital for each month, is not to be surpassed. But as it often happened that patients admitted towards the close of one

month had little or no fever until the following month, and that when the attack was prolonged the fever was continued into the month following admission and even later, this only represents approximately the fever-rate for each patient admitted during the month to which it refers. It has, therefore, been placed under the heading of "APPROXIMATE FEVER-RATE." This is represented in Chart III in outline only (white on black ground and black on white ground).

THE TRUE FEVER-RATE—that is to say, the average amount of pyrexia from all causes (in days × degrees above 100° F.)—for each patient admitted during each month is given.

By referring to the table (p. 235D), it will be seen that during the first year and a half the amount of fever which followed upon each labour presented considerable variation month by month, but that it was invariably great—the lowest figure, as given by the true fever-rate, approaching 6 degrees, and the highest number almost reaching 25 degrees. Then follows a noteworthy declension. Throughout the last five years, with the exception of occasional slight relapses (in which, however, 6 degrees was once only exceeded), a point varying but little on either side of 1 or 2 degrees has been fairly maintained. These figures, when reduced to general terms, indicate that prior to May, 1884, each patient admitted passed through, on an average, 17 degrees of fever during the puerperium against 1 degree after that date. This, by way of example, may be taken to mean that every labour was followed by temperature rising daily to 100°—101° F. for seventeen days, of 101°—102° for eight or nine days, of 103°—104° for four days or rather more, or by a similar amount of fever otherwise distributed; but that after May, 1884, a slight rise of 100°—101° F. occurred for one day only—truly a marvellous difference.

It may be noted that, when the cases of severe and prolonged illness are few, the true and approximate fever-rates very nearly coincide.



CHART

Total nu
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See Table

Number of
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Total av
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Number of
who had sept
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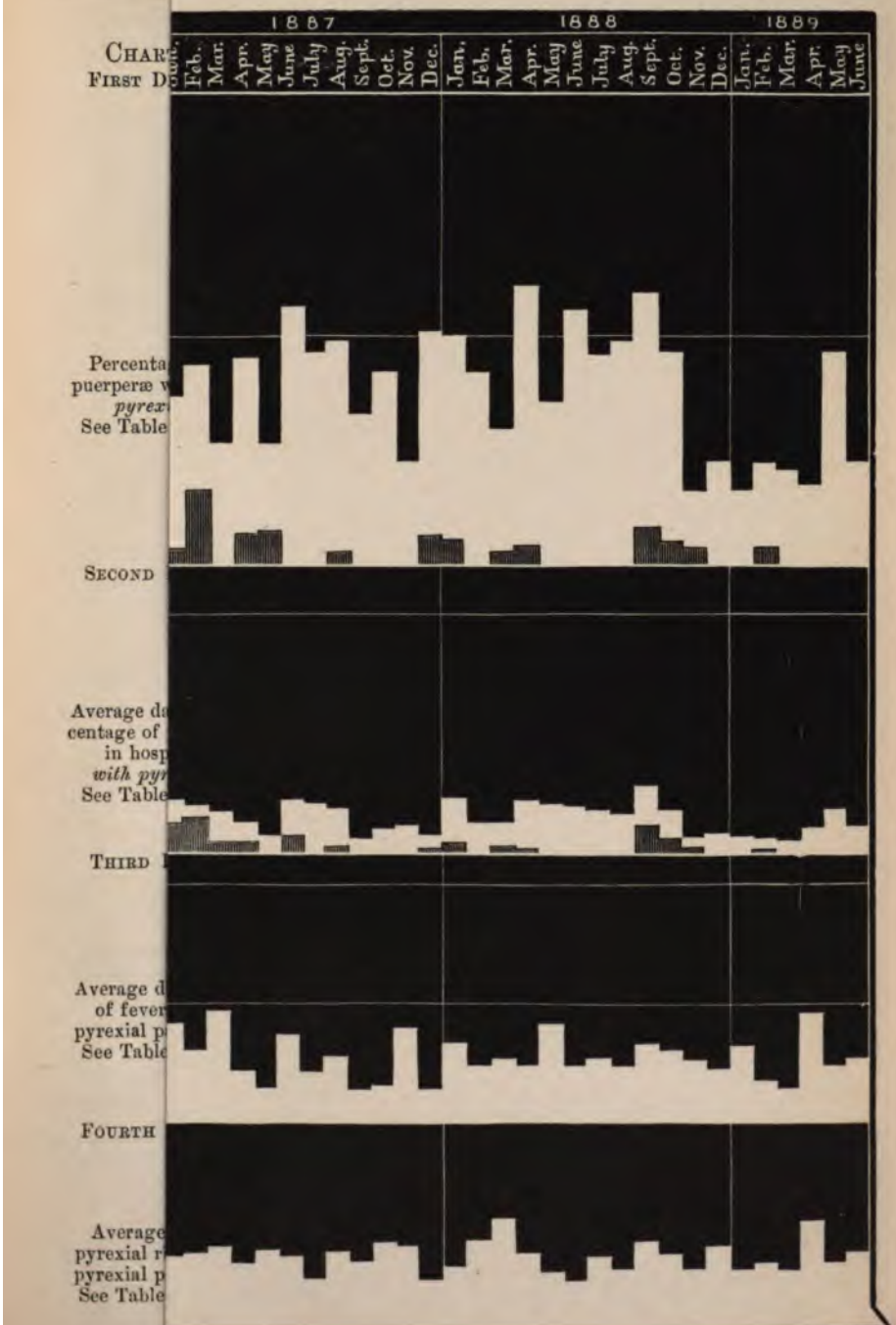
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?, 3	July, 1883	April, 1885	May, 1885	June, 1885	July, 1885	Aug., 1885	Sept., 1885	Oct., 1885	Nov., 1885	Dec., 1885	
	19	13	13	20	12	15	18	11	13	24	(1)
	8	17	13	18	15	22	20	25	15	16	(2)
	27	30	26	38	27	37	38	36	28	40	(3)
93	70·370	83·333	50·000	52·631	44·444	40·540	47·368	30·555	46·428	60·000	(4)
06	29·629	16·666	50·000	47·368	55·555	59·459	52·631	69·444	53·571	40·000	(5)
62	32·163	33·145	11·830	12·600	13·908	9·629	11·196	8·519	11·007	18·315	(6)
37	67·836	66·854	88·169	87·400	86·091	90·370	88·803	91·480	88·992	81·684	(7)
39	8·684	6·307	4·076	3·150	4·833	3·466	3·222	3·818	3·615	4·166	(8)
56	13·935	11·100	4·032	3·266	5·419	2·354	2·066	3·096	3·333	6·354	(9)
20	2·618	3·732	4·166	1·555	2·431	1·923	1·068	2·285	2·127	1·197	(10)
06	16·000	11·100	4·807	2·578	5·222	2·702	1·631	2·666	3·571	4·925	(11)
00	16·777	11·566	5·730	2·052	5·814	2·027	2·421	1·750	6·892	2·900	(12)
	8	2	2	2	1	1	1	1	1	1	(13)
80	29·629	33·666	7·692	5·263	3·703	2·702	2·631	2·777	3·571	2·500	(14)
49	23·104	23·073	7·280	1·985	6·772	2·237	0·174	3·435	1·923	1·098	(15)
90	15·370	11·400	3·961	0·342	4·666	0·243	0·447	0·972	0·357	0·350	(16)

., 6	Jan., 1887	Oct., 1888	Nov., 1888	Dec., 1888	Jan., 1889	Feb., 1889	March, 1889	April, 1889	May, 1889	June, 1889	
	12	21	6	9	7	8	11	6	17	10	(1)
	20	24	33	30	35	27	39	27	19	33	(2)
	32	45	39	39	42	35	50	33	36	43	(3)
11	37·500	44·666	15·384	23·076	16·666	22·857	22·000	18·181	47·222	23·255	(4)
88	62·500	53·333	84·615	76·923	83·333	77·142	78·000	81·818	52·777	76·744	(5)
56	10·683	8·944	2·925	3·831	3·503	3·164	2·995	5·533	8·786	6·459	(6)
43	89·316	90·055	97·074	96·168	96·496	96·835	97·004	94·466	91·213	93·540	(7)
00	4·166	2·904	2·666	2·222	3·142	1·875	1·636	4·666	2·470	2·700	(8)
06	2·419	3·129	0·700	1·129	0·935	0·750	0·741	2·500	2·000	1·466	(9)
50	1·500	1·590	1·312	1·750	1·318	1·400	1·277	2·678	1·476	1·629	(10)
47	2·343	2·155	0·538	0·897	0·690	0·600	0·460	2·272	1·722	1·023	(11)
11	1·351	1·913	0·512	0·707	0·571	0·666	0·673	1·939	1·888	0·880	(12)
	1	2	1	0	0	1	0	0	0	0	(13)
23	3·125	14·347	2·564	0·000	0·000	2·777	0·000	0·000	0·000	0·000	(14)
63	6·365	2·865	0·551	0·000	0·000	0·636	0·000	0·000	0·000	0·000	(15)
11	0·531	0·739	0·179	0·000	0·000	0·111	0·000	0·000	0·000	0·000	(16)

The SEPTIC RATE—that is to say, the average amount of pyrexia due to septicæmia and pelvic inflammation (in days × degrees above 100° F.)—for each patient admitted during each month is also given.

On referring to the table it will be seen that the septic rate during the first eighteen months on one occasion almost reached 23 degrees, and rarely fell below 10; that it declined perceptibly at the beginning of 1884, and after May of that year rarely rose above 3 degrees, and was often reduced to zero or to a fraction of a degree for months at a time. In general terms it may be said that the septic rate fell from 13 to less than half a degree.

This chart further demonstrates—

(1) That the decline in the general fever-rate has in the main resulted from decline in the septic rate.

(2) That, though occasional slight rises have occurred during the last five years, the general tendency has been towards improvement, not only in the general fever-rate, but also in the septic rate; and that when the general fever-rate has risen, it has in the main resulted from increase in the septic element.

Three out of the four propositions set down at the outset have now been considered in detail (see p. 227 *supra*).

Before proceeding to describe the service of the hospital and the changes which have been effected in it, it will be advisable to inquire more particularly into the nature of the illness prevailing. This will occupy the following section.

II. *The death-rate and the nature of the illness prevailing; decrease in, and temporary abolition of septic cases.*

(Received December 10th, 1889.)

(*Abstract.*)

A TABULAR STATEMENT is given of the more severe cases of illness under three heads, which include all the cases (1) which were *detained beyond three weeks*, (2) which were *transferred to other hospitals*, and (3) which *ended fatally*. A short account of each of the deaths is given in a RECORD OF FATAL CASES.

By this means the influence of the diminution of febrile illness on the death-rate is shown.

The nature of the illness falling under each head is analysed in turn. A key of reference to the case numbers in each series is added to Chart III, in order to bring the cases of severe illness and the fever-rate into mutual relation for each month.

The general fever-rate and septic rate as given in Chart III, and the severe cases of illness as given in the Tabular Statement, taken together, indicate with some degree of precision the state of the hospital at different periods.

May, 1884, marks an important epoch in the hospital's history.

The condition of the hospital before and after that date is commented upon and is summarised in TABLE II, special attention being drawn to the abrupt decline of septic illness which occurred at that time.

This Table shows—

That the death-rate from all causes followed the decline in the general fever-rate; and that, as in the one case the improvement resulted in the main from decrease in the number and severity of cases affected with septicæmia and pelvic inflammation, so in the other the decline was mainly wrought by decrease in and temporary abolition of the septic element.

Considerable progress, as shown by the decreasing death-rate (the only criterion available for that distant date), had

been made in the same direction prior to the commencement of the septennial period now under consideration, but, as far as is known, no such comparative immunity from septic illness had been hitherto attained.

The continued decrease in the death-rate and the steady diminution of febrile illness, and especially of septic illness, indicate that improvement is still going on.

In the following sections the service of the hospital and the changes which have been effected in it will be considered. The coincidence of these changes with variations in the condition of the hospital will be traced.

In this section I shall show to what extent the decrease in the amount of febrile illness affected the death-rate.

I would in the first place point out two ways in which Chart III, when taken by itself, fails as a perfectly correct index of the total amount of morbility. I refer to those patients who died in the hospital, and to those who were transferred to other hospitals on account of prolonged illness.

A *Tabular Statement* (p. 244) is given—

(1) OF ALL THE CASES IN WHICH IT WAS FOUND NECESSARY TO DETAIN THE PATIENT FOR A LONGER PERIOD THAN THREE WEEKS AFTER DELIVERY.

(2) OF ALL THE CASES IN WHICH THE PATIENT WAS TRANSFERRED TO ANOTHER HOSPITAL.

(3) OF ALL THE CASES WHICH ENDED FATALLY.

The position which they severally occupy upon the chart is indicated by the corresponding and distinctive number of each series (see Chart III, p. 235c).

These categories include the more severe forms of illness, but without some such notification the second and third would not be represented to the full extent in the chart, for the fever in the one case is often cut short by death, and in the other breaks off when the transfer of the patient is effected. As, however, after May, 1884, both the death-rate decreased and the number of cases which it was found necessary to transfer diminished, the

improvement represented by the chart is in no way discounted, but rather the reverse.

This becomes still more evident when the nature of the illness is taken into consideration.

Glance for a moment at the nature of the fifteen fatal cases. A short account of each will be found in the appended *Record of Fatal Cases* (p. 252). They form a suitable peg, upon which to hang the remarks which I am about to make with regard to the character of the illnesses which prevailed prior to and subsequent to May, 1884.

Previous to that date, six deaths took place among 612 patients admitted, giving a mortality of very nearly 1 per cent., viz. 1 in 102. All of these cases are essentially septic in character :—(1) Pyometritis, pelvic peritonitis, and septic phlebitis; (2) severe traumatic inflammation ending in abscess and purulent peritonitis; (3) general septic infection; (4) septic phlebitis and acute endocarditis; (5) traumatic hæmatoma ending in abscess, pyolymphangitis, perimetritis, and parametritis; and (6) pyometritis, septic phlebitis, and acute endocarditis.

After May, 1884, nine deaths took place among 2150 patients admitted, giving a mortality of little more than 0·4 per cent., or 1 in 239. Two patients died from advanced pulmonary phthisis, two others from eclampsia, one from hæmorrhage, and one from mercurialism and morphinism combined, in all of which septicæmia played no part; one succumbed to septic phlebitis and general pyæmia; one to sloughing of the soft parts and parametritic abscess following severe instrumental labour, and one to hospital gangrene. With the single exception of one of the advanced phthisis cases (concerning the nature of which there could be no doubt), all of these last-mentioned cases were verified by post-mortem examination.

That deaths from an affection so prevalent as pulmonary phthisis or so fatal as eclampsia, in association with childbirth, will from time to time occur among puerperal patients is only to be expected, and cannot be guarded

against when no selection of patients is made, but may rather be anticipated in an institution to which the more serious cases naturally gravitate. The point, therefore, to which I would direct special attention is not the evidence of such cases, but the fact that while six deaths occurred from septic illness among 600 patients before May, 1884, three deaths only can be attributed to septic influence in more than 2000 confinements which followed that date—a mortality but one-seventh part of the previous death-rate.

Moreover, the instances of severe and prolonged illness which necessitated transfer to other hospitals tell a precisely similar tale. These include 15 cases of scarlatina which were sent to the hospital of the Metropolitan Asylums Board at Stockwell, not on account of the severity of the illness, but in order to prevent the spread of infection to other patients. Omitting these, prior to May, 1884, 18 were transferred on account of severe or prolonged illness, against 10 subsequently, giving a ratio of 1 in 34 against 1 in 215. And here, again, it is found that septic poisoning played a very subsidiary part after May, 1884.

For before that date, among the cases transferred may be reckoned twelve of pelvic inflammation (of which two ended in abscess, one of them being complicated by mania, one was associated with erysipelas, and another with typhoid fever and pleurisy; one with acute nephritis, and one or two with cystitis) and two cases of general septic poisoning; one of remote abscesses of doubtful origin, one of double phlegmasia dolens, and two of acute mania.

But after that date, two cases only of pelvic inflammation appear (both undergoing resolution), the remainder comprising one of acute mania, one of eclampsia followed by mania, and one of eclampsia associated with acute nephritis and followed by otorrhœa and meningitis, one of chronic nephritis and ascites, one of chronic nephritis and thrombosis of the internal saphenous vein, one of cancer of

the uterus, one of cancer of the rectum with recto-vaginal fistula, and one of vesico-vaginal fistula.

Turning now to the cases which it was found necessary to detain beyond three weeks from the date of delivery, the same facts are proclaimed. They serve to emphasize the proof.

Prior to May, 1884, fifty-five such cases are recorded. They include thirty-six instances of pelvic inflammation—perimetritis and parametritis (the majority accompanied by exudation, of which five ended in abscess; two others being associated with mammary abscess; two of the former and one of the latter suppurating cases being complicated by mania; one was associated with gastritis; one or two with cystitis; one with acute nephritis; one with pleurisy; one with scarlatina, acute nephritis, and pleurisy; and one with typhoid fever and pleurisy), together with six cases of general septic poisoning, of which three ended fatally; three additional cases of mammary abscess; two additional of cystitis; and one each of double phlegmasia dolens, of remote abscesses, of acute gastritis, of glycosuria, and of general weakness. Two cases which were probably scarlatinal (one being associated with pneumonia, mania, and double mammary abscess; the other with late perimetritis), and one other of an obscure nature, complete the list.

After May, 1884, the record includes but twenty-six such cases. Witness the difference also in their nature—four cases of pelvic inflammation (one being associated with single and one with double phlegmasia, but all undergoing resolution), one case of sloughing of the soft parts associated with parametritic abscess which ended fatally; three cases of mammary abscess; two of cystitis; four of thrombosed veins in the leg; one each of chronic bronchitis, of acute pleurisy, of intestinal irritation, of nephritis, and of eclampsia associated with acute nephritis, and followed by otorrhœa and meningitis; two of recto-vaginal fistula (one being associated with cancer of the rectum); and one of vesico-vaginal fistula. One other patient was detained

on account of weakness resulting from ante-partum hæmorrhage, and one on the infant's account. In the two remaining cases the nature of the illness was undetermined.

It will be observed that occasionally the same case appears in more than one category.

The facts given in this statement are very striking when allowance is made for the difference in the number of admissions during each of these periods.

The condition of the hospital before and after May, 1884, is summarised in *Table II* (p. 263).

This table shows—

That the death-rate from all causes followed the decline in the general fever-rate, and that, as in the one case the improvement resulted in the main from decrease in the number and severity of cases affected with septicæmia and pelvic inflammation, so in the other the decline was mainly wrought by decrease in and temporary abolition of the septic element.

Considerable progress, as shown by the decreasing death-rate (the only criterion available for that distant date), had, however, been made in the same direction prior to the commencement of the septennial period now under consideration, but, as far as is known, no such comparative immunity from septic illness had been hitherto attained.

Consequently the improvement which has now taken place stands out in greater prominence still when the septennial period now completed is compared with the past.

We need but look back a few years.

I take the liberty of quoting from Dr. Cullingworth's able address on "Puerperal Fever a Preventable Disease."*

"Until the year 1877 this hospital was scarcely ever free from puerperal fever, and the mortality, always high, occasionally became fearful. In 1838, of 71 women delivered 19 died; in 1861, 14 died out of 195; and in 1877, 9 out of 63. On several occasions the hospital had to be

* London: published by J. and A. Churchill, 1888.

closed for long periods, and thousands of pounds were spent on the sanitary improvement of the building. In October, 1879, this institution, having been closed for two years, was reopened, and has since been conducted on antiseptic principles, the details varying from time to time as increased knowledge and experience have dictated. Mark the result. The total mortality, which from 1833 to 1860 averaged 30·8 per 1000, and from 1861 to 1877 17 per 1000, has fallen during the last eight years to an average of 6 per 1000."

Period.	Deliveries.	Deaths.	Average death-rate from all causes.
1833 to 1860	5833	180	1 in 32½ = 3·085 %.
1861 to 1877	3773	64	1 in 58⅞ = 1·696 %.
1880 to 1887	2585	16	1 in 161½ = 0·618 %.

This table shows the progressive decrease in the death-rate.

During the last two years this average has been still further reduced.

That improvement is still going on is evidenced not only by the diminishing death-rate (see Table II) but also by the steady diminution of febrile illness, and especially of septic illness, to which I have already called attention.

It is a source of gratification to find that though the General Lying-in Hospital has not yet attained absolute perfection, such close approximation to immunity from illness is scarcely surpassed by any of its richly endowed Continental or American contemporaries.

Now, on account of the progressive character of the decline in the death-rate, which, it may be observed, was initiated before the era of antiseptics, it may be objected that the improvement in this respect, and also as regards the decrease of febrile illness which has since taken place, has resulted not from changes which have been purposely

introduced into the service of the hospital, such as I am about to relate in the following sections, but have been wrought by the agency of natural causes. I shall, however, when discussing the effect of atmospheric changes on fever in childbed in the concluding section of Part II of this paper, produce evidence indicating to what extent natural causes have affected the condition of the hospital as compared with the general run of practice. I shall show how these influences, at one time operative within the hospital, have for some years ceased to be so. This objection will then be disposed of completely.

Tabular Statement of Cases.

(1) *Detained beyond three weeks and recovered.*
(2) *Transferred to other Hospitals* (*result given*).
(3) *Died.*

The position which these cases occupy is indicated upon Chart III by the corresponding and distinctive number of each series.

Note.—The numbers i, ii, iii, &c., refer to the day of the puerperium. The days are counted from midnight to midnight. If a patient be delivered at 10 p.m. (being removed from delivery-room to lying-in ward two hours after), the first day commences at midnight. If, however, delivery occur before 10 p.m., the second day of the puerperium is reckoned to commence at midnight.

Hosp. Rep.	Date of admission.	Discharged, transferred, or died.	No. of case detained beyond 3 wks.	Temperature.	Nature of illness.	No. of case transferred.	Transferred to	Ultimate result.	No. of case died.
	1882.								
190	Aug. 9th	xxiv	1	High fever iii—vii, irregular after till xx	Pelvic exudation				
198	„ 16th	xxii	2	High fever ii—xiv	Pelvic exudation				
205	„ 24th	xxii	3	Moderate fever iii onwards	Pelvic exudation	1	Univ. Coll. Hosp.	Left cured 61 days later	
209	„ 28th	xxxiv	4	High fever iii—xi, moderate after	Pelvic exudation, acute mania, mammary abscess				
212	„ 29th	xxix	5	High fever ii—iv, moderate after	Pelvic exudation, ending in abscess	2	Univ. Coll. Hosp.	Left cured 24 days later	
221	Sept. 7th	xxx	6	Moderate fever v—xiii, slight after	Mammary abscess. V.E. nil				
236	„ 21st	xxiii	7	High fever iii—ix, slight after	Pelvic exudation				
256	Oct. 13th	xxxvi	8	Moderate fever iii—xiv, irregular after	Abscess in both calves. V.E. nil	3	St. Geo. Hosp.	Recovered	

[illegible]	[illegible]	[illegible]	[illegible]	[illegible] after	[illegible] exudation, pleurisy				
287	,, 19th	xiii	—	High fever iii onwards	P.M.—Pyometritis, pelvic peritonitis, and septic phlebitis	—	—	Died in hospital	1
302	Dec. 3rd	xxvii	11	Moderate fever ii—x, slight after	Pelvic exudation (anterior), ultimately ending in abscess				
324	,, 30th	ix	—	High fever ii onwards	P.M.—Severe traumatic inflammation, ending in abscess and purulent peritonitis	—	—	Died in hospital	2
	1883.								
18	Jan. 21st	xlii	12	High fever ii—xi, slight after	Pelvic exudation				
24	,, 25th	xliv	13	Irregular xi—xxix	Serous perimetritis ending in abscess				
38	Feb. 5th	xxii	14	Irregular moderate ii—xviii	Scarlatina, late peritonitis				
48	,, 21st	xxxiii	15	Moderate fever iii—xi, slight after	Pelvic exudation				
84	Mar. 23rd	xl	16	Moderate fever v—xvii, slight after	Pelvic exudation	5	Univ. Coll. Hosp.	Left cured 57 days later	
89	,, 29th	xxxviii	17	Moderate fever ii—v, high xv—xxiii, slight after	Double mammary abscess. V.E. nil				
98	April 8th	xix	—	Moderate fever iii—v	Acute mania	6	Lambeth Infirmary	Sent to Salisbury Asylum 4th May. Much better 31st Aug.	
112	,, 20th	xxx	18	Moderate fever v—xxviii	Mammary abscess. V.E. nil				
116	,, 24th	xxvii	19	Slight irregular rises	Glycosuria				
123	May 3rd	xxii	20	Moderate fever iv—ix and xiv—xix	Sapræmia				
126	,, 5th	xxii	21	High fever ii onwards	General septic infection		—	Died in hospital	3

Hosp. Rep.	Date of admission.	Discharged, transferred, or died.	No. of case detained beyond 8 wks.	Temperature.	Nature of illness.	No. of case transferred.	Transferred to	Ultimate result.	No. of case died.
	1883.								
129	May 8th	xxvii	22	Irregular, generally slight ii onwards	Pelvic exudation, acute nephritis	7	Univ. Coll. Hosp.	Left cured 47 days later	
132	„ 10th	xxiv	23	High fever iv onwards	P.M. — Septic phlebitis and acute endocarditis	—	—	Died in hospital	4
140	„ 22nd	xii	—	High fever ii onwards	Erysipelas, pelvic exudation	8	Univ. Coll. Hosp.	Left cured 20 days later	
149	June 7th	xxviii	24	Moderate irregular iii onwards	Parametritis, ? cystitis	9	Univ. Coll. Hosp.	Left cured 31 days later	
151	„ 10th	xxxi	25	Moderate irregular viii—xix and xxiii onwards	Perimetritis	10	Univ. Coll. Hosp.	Left cured 38 days later	
153	„ 12th	xxiii	26	High fever v—xii	Acute gastritis. V.E. nil				
169	„ 26th	xxiii	27	High irregular ii—xviii	? V.E. nil				
183	„ 27th	xxviii	28	High irregular iii—xxii	Pelvic peritonitis				
178	July 6th	xl	29	High fever iv—x, moderate irregular xv—xxiii	Scarlatina, pneumonia, mania, double mammary abscess				
179	„ 7th	xlii	30	High fever iii onwards	Typhoid fever, pleurisy, pelvic exudation	11	Univ. Coll. Hosp.	Left cured 44 days later	
202	„ 29th	xli	31	High fever iv—xiii, irregular xvi—xxx	Pelvic exudation				
212	Aug. 10th	xxxv	32	Moderate fever throughout	Pelvic exudation	12	Univ. Coll. Hosp.	Left relieved 16 days later	
225	„ 22nd	xxxix	33	High fever iv—vi, moderate, irregular after	General septic infection	13	Univ. Coll. Hosp.	Left cured 45 days later	
236	Sept. 3rd	xxviii	34	Slight irregular rises after xii	Pelvic peritonitis				
238	„ 5th	xix	—	Moderate fever iii—viii, slight irregular after	Acute mania. V.E. nil	14	Lambeth Infirmary	Left much relieved 10 days later	

				iii—xxxii	Pelvic exudation				
250	„ 16th	xxv	36	Practically normal thro'-out	General weakness				
254	„ 20th	xxxii	37	Moderate fever iv—vii, slight xvii—xxx	Perimetritis				
257	„ 23rd	xxxiii	38	High fever iii—xii, slight after	Pelvic exudation				
259	„ 26th	xxiii	39	Moderate fever iii—v, slight irregular after	Perimetritis				
268	Oct. 8th	xxvi	40	Moderate irregular rises	Perimetritis, gastritis				
275	„ 15th	xlix	41	High fever ii—xiv, irregular till xxxvii	Parametritis ending in abscess, mania				
282	Nov. 22nd	xxxiii	42	High fever iii—xi, slight irregular rises after	Perimetritis and parametritis, cystitis	15	St. Geo. Hosp.	Left cured 49 days later	
284	„ 22nd	xxx	43	High fever irregular ii—viii and after xiv	Perimetritis and parametritis ending in abscess, mania	16	St. Geo. Hosp.	Left cured 51 days later, but mania persisting 3 months after	
286	„ 26th	xxvi	44	Moderate fever xi—xx	Perimetritis				
287	„ 26th	xxviii	45	High fever iii, gradually declining	Parametritis, double mammary abscess				
330	Dec. 23rd	xvii	—	High fever iii—ix, slight irregular rises after	P.M.—Traumatic hæmatoma ending in abscess, pyolymphangitis, perimetritis, and parametritis	—	—	Died in hospital	5
333	„ 25th	xxxi	46	Slight irregular rises	Cystitis				
335	„ 2nd	xxvii	47	Moderate irregular fever iii—xi	Cystitis				
	1884.								
7	Jan. 7th	lxxviii	48	Moderate irregular fever iii—xi, slight after	Parametritis				
15	„ 14th	xxxiii	49	Moderate fever iii—viii and xii—xxiv	Scarlatina, pleurisy, acute nephritis, perimetritis, and parametritis	(17)	Stockwell Fever Hosp.	Left cured 42 days later	

Hosp. Rep.	Date of admission.	Discharged, transferred, or died.	No. of case detained beyond 3 wks.	Temperature.	Nature of illness.	No. of case transferred.	Transferred to	Ultimate result.	No. of case died.
	1884.								
20	Jan. 26th	xxv	50	High fever iii—xiii	Parametritis				
21	„ 29th	xix	—	Slight fever iii and iv, ix and x	Scarlatina, slight nephritis. V.E. nil	(18)	Stockwell Fever Hosp.	Left cured 28 days later	
25	„ 31st	xvii	—	Moderate fever v—ix, slight after till xv	Scarlatina, rheumatism, slight albuminuria. V.E. nil	(19)	Stockwell Fever Hosp.	Left cured 35 days later	
26	„ 31st	xvii	—	Slight irregular fever i—vi, high after till xii	Scarlatina, slight nephritis. V.E. nil	(20)	Stockwell Fever Hosp.	Left cured 28 days later	
35	Feb. 7th	x	—	Transitory rise iii, fever before admission	Scarlatina. V.E. nil	(21)	Stockwell Fever Hosp.	Subsequent nephritis and uræmic convulsions. Left cured 69 days later	
37	„ 21st	xxxiv	51	High fever v—xii, moderate xv—xviii, slight after till xxvii	Parametritis				
38	„ 23rd	xxxiv	52	Slight fever ii—ix, high after	P.M.—Pyometritis, septic phlebitis, and acute endocarditis	—	—	Died in hospital	6
54	Mar. 13th	i	—	Rigor before admission, and fever for fortnight after	Scarlatina	(22)	Stockwell Fever Hosp.	Left cured 50 days later	
63	„ 26th	xxiv	53	Slight fever iii—xii, moderate after	General septic infection	23	Univ. Coll. Hosp.	Left cured 20 days later	
79	Apr. 16th	xxvii	54	High fever iii—x, irregular after till xxiii	Parametritis				
83	„ 17th	xxxiv	55	High fever iv—xvi, slight after	Perimetritis and parametritis	24	Univ. Coll. Hosp.	Left cured 20 days later	
85	„ 20th	v	—	Slight occasional rises, fever for week after	Scarlatina	(25)	Stockwell Fever Hosp.	Left cured 37 days later	
91	„ 25th	vii	—	Normal throughout	Scarlatina	(26)	Stockwell Fever Hosp.	Left cured 45 days later	

				for week or two after	Scarlatina	(27)	Stockwell Fever Hosp.	Left cured 51 days later	
93	„ 27th	v	—	Slight fever from iii	Scarlatina, slight nephritis	(28)	Stockwell Fever Hosp.	Left cured 46 days later	
*	*	*	*	* * *	* * *	*	* *	* * *	*
102	May 19th	xxviii	56	Slight transitory rise xxii only	Cystitis				
116	June 4th	xvi	—	Slight fever iii onwards	Perimetritis	29	Univ. Coll. Hosp.	Left cured 34 days later	
121	„ 10th	iii	—	Slight fever from labour and week after	Scarlatina	(30)	Stockwell Fever Hosp.	Left cured 51 days later	
124	„ 15th	xxiii	57	Slight transitory rise v only	Cystitis				
156	July 11th	xv	—	Normal throughout	Chronic nephritis, thrombosis of int. saphenous vein	31	Univ. Coll. Hosp.	Left cured 42 days later	
188	Aug. 11th	xxix	58	Slight fever viii—xii	Recto-vaginal fistula				
208	Sept. 1st	xxvi	59	Slight fever xii—xv	Mammary abscess. V.E. nil				
284	Nov. 12th	iv	—	Moderate fever i onwards	Pleurisy, scarlatina	(32)	Stockwell Fever Hosp.	Left cured 56 days later	
291	„ 23rd	xv	—	Slight transitory rise iii only	Scarlatina	(33)	Stockwell Fever Hosp.	Left cured 47 days later	
	1885.								
14	Jan. 12th	vi	—	Normal throughout	Scarlatina	(34)	Stockwell Fever Hosp.	Recovered	
23	„ 22nd	xxxi	60	Slight irregular fever ii—xxii	Mammary abscess. V.E. nil				
63	Mar. 2nd	ix	—	Moderate fever throughout	Advanced phthisis	—	—	Died in hospital	7
92	„ 13th	xxxi	61	Slight fever iii—xix	Intestinal irritation. V.E. nil				
96	April 4th	xxxv	62	Slight fever x—xiv	Venous thrombosis in left leg. V.E. nil				
106	„ 14th	vi	—	Moderate fever throughout	P.M.—Advanced phthisis	—	—	Died in hospital	8

Hosp. Rep.	Date of admission.	Discharged, transferred, or died.	No. of case detained beyond 3 wks.	Temperature.	Nature of illness.	No. of case transferred.	Transferred to	Ultimate result.	No. of case died.
	1885.								
114	Apr. 22nd	xxxiii	63	Moderate fever iii—ix	Parametritis				
122	„ 30th	lv	64	Moderate irregular fever iii—xlv	Pelvic inflammation and double phlegmasia dolens				
196	July 6th	lvi	65	High fever ii—xxxiii	Parametritis and phlegmasia dolens				
221	Aug. 5th	xxvi	66	Slight fever x—xiii	Thrombosis of femoral vein				
244	„ 22nd	xvi	—	Normal throughout	P.M.—Mercurialism and morphism	—	—	Died in hospital	9
293	Oct. 1st	xviii	—	Slight irregular iv—viii, high from ix	P.M. — Septic phlebitis and general pyæmia	—	—	Died in hospital	10
332	Nov. 8th	xxviii	67	Slight fever ii—vi	Thrombosis of saphenous vein. V.E. nil				
333	„ 9th	xxxi	68	Moderate and occasionally high fever throughout	Nephritis, eclampsia, bedsores	35	Univ. Coll. Hosp.	Subsequent otorrhœa and meningitis, but left cured 71 days later	
	1886.								
26	Feb. 12th	xxxvii	69	Normal throughout	Thrombosis of saphenous vein				
201	July 16th	xxiv	70	Slight irregular fever vii—xviii	Mammary abscess. V.E. nil				
343	Nov. 26th	vi	—	Moderate fever i—iii, high v	P.M.—Eclampsia	—	—	Died in hospital	11
	1887.								
34	Feb. 2nd	xxiii	71	Normal throughout	Vesico-vaginal fistula	36	Lond. Hosp.	Operation. Left cured 80 days later	
41	„ 13th	xxiii	72	Occasional slight fever iv onwards	Perimetritis and parametritis	37	Lond. Hosp.	Left cured 17 days later	
94	Mar. 13th	xxii	73	Slight irregular fever till	?				

113	May 1st	xiv	—	Slight fever vii—ix	Chronic nephritis and ascites	38	Parish Infirmary and afterwards St. Geo. Hosp.	Left improved 13th June	
328	Oct. 29th	iii	—	High irregular fever throughout	P.M.—Eclampsia	—	—	Died in hospital	12
342	Nov. 6th	xxii	74	Slight fever till xiv	Acute pleurisy. V.E. nil				
	1888.								
143	Apr. 14th	xx	—	Occasional slight rises i—vi	Carcinoma of cervix, too far advanced for operation	39	Lond. Hosp.	Left 11th May	
182	May 20th	xxii	75	Practically normal thro'-out	(Detained on account of infant)				
261	July 19th	xv	—	Normal throughout	Acute mania	40	Lambeth Infirmary	Still in asylum 18th May, 1889	
334	Sept. 2nd	xxii	76	Moderate fever iii onwards	Sloughing of soft parts and parametritic abscess	—	—	Died in hospital	13
363	„ 24th	xxix	77	Slight fever ii—vii	Nephritis				
377	Oct. 2nd	xxiii	78	Slight fever iii—xv	?				
381	„ 4th	ix	—	Irregular moderate fever iii onwards	P.M. — Hospital gangrene	—	—	Died in hospital	14
388	„ 9th	xiii	—	Slight fever i and ii	Eclampsia followed by mania	41	Lambeth Infirmary	Well 10th Jan., 1889	
437	Nov. 15th	xxvii	79	Practically normal thro'-out	Weakness following hæmorrhage before delivery				
471	Dec. 15th	xxiv	80	Moderate fever vii—xii	Cancer of rectum and vesico-vaginal fistula	42	Lond. Hosp.	Excision, partial union. Left 74 days later	
	1889.								
50	Feb. 5th	xxii	81	Normal throughout	Chronic bronchitis				
236	June 27th	i	—	Normal throughout	Hæmorrhage (accidental and post-partum)	—	—	Died in hospital	15

Record of Fatal Cases.

The numbers i, ii, iii, &c., refer to the day of the puerperium (see note, p. 244).

1. Hosp. Rep. 287. Admitted 19th November, 1882. Died 3rd December, 1882. Partial placenta prævia, 4-para. Early rupture of membranes and artificial dilatation of cervix under chloroform. Hæmorrhage, which had not been severe, then ceased. Temp. rose to 103·4° before labour was completed, but afterwards fell to normal.

Temp. began to rise again on i, and reached 103° on iii, increasing steadily to 106·2° on xiii, with occasional remissions of two or three degrees, followed by rigors on viii, ix, and xii.—No regular after-pains. Acute pains in left iliac region on evening of i, abdomen distended from ii, diarrhœa set in on iv and retching vii. Localised inflammatory cutaneous areas appeared in various parts of upper limbs and on buttocks and forehead after ix. Slight delirium supervened xii, and death took place xiii. Lochia offensive from iii, continued red but scanty, and occasionally stopped for twenty-four hours after vi till death. Fundus declined less readily than usual, being still four inches above pubes on vii. Deposit recognised in pelvis by vaginal examination on ix. Milk came in on iii, never plentiful, but sufficient till ix, when it failed.—Intra-uterine carbolic douches. Poultices with laudanum to abdomen. Quinine internally.

Post-mortem.—Old and recent pleurisy. Pelvic peritonitis. Except for adhesions, ovaries and tubes normal. Thrombosis of right ovarian vein extending to broad ligament and forming a solid swelling, size of a walnut. Pus in uterine sinuses.

2. Hosp. Rep. 324. Admitted 30th December, 1882. Died 8th January, 1883. Cyst (? dermoid) size of fœtal head, adherent in pelvis, twice aspirated through vagina. Temp. rose to 101° afterwards. Craniotomy. Lacerations of perinæum and vagina. 1-para.

Temp. began to rise i, and reached 104° on ii, dropped 1° on iv, but persisted till patient became unconscious vii.—Collapse followed labour. Severe bearing-down pain i. Marked œdema of labia and vagina, and uterus very tender ii. Offensive lochia from iii, free and red till after v. Vagina and perinæum sloughing iv. Abdominal distension and tenderness, pain severe and increasing, and legs drawn up. Patient sank into an unconscious state vii, and died ix.—Uterine and vaginal douches of carbolic and Condy. Catheterism under chloroform, bladder irrigated with carbolic and Condy. Morphine hypodermically. Poultices with laudanum to abdomen.

Post-mortem.—Thin purulent fluid in abdomen. Slight general peritonitis. No escape of cyst contents into peritoneal cavity. Sloughing greenish cavity round upper part of vagina, involving all coats of bladder, and in urethro-vaginal septum. Sloughs on wall of cervix, but not of body. Old adhesions of pleuræ. Vena cava and iliac veins healthy. Left ovary pale, right injected, both œdematous and softened. Tubes not mentioned.

3. Hosp. Rep. 126. Admitted 5th May, 1883. Died 26th May, 1883. Normal and easy labour. 1-para. No laceration noted.

Temp. began to rise ii, and reached 104° on iii, varying from 103° to 105° with considerable remissions and occasional intermissions till death.—No after-pains. General tenderness over uterus and lochia offensive iii. Maniacal delirium vii. Lochia, which had changed from free red to scanty pink iv, and from latter to yellow vii, became free white and again offensive viii, and ceased ix. Diarrhœa set in xiii, acute pharyngitis xviii, vomiting xx, and pneumonia xxi. Died xxii. Fundus had declined below brim of pelvis by xii.—Bismuth, quinine.

No post-mortem could be obtained.

4. Hosp. Rep. 132. Admitted 10th May, 1883. Died 2nd June, 1883. Tedious first stage, but otherwise normal labour. Lacerated perinæum. 1-para.

Temp. rose suddenly iv to 104°, varied from 104° to 106° with marked remissions till xii, and 1° lower with slighter remissions till xxi, declining gradually during last three days of life.—No after-pains. Offensive lochia from iv. Shivering fit iv and rigor vi. Cardiac systolic murmur at apex from vi. Signs of pneumonia from x. Diarrhœa from xv. Strabismus. Heart murmur increased much in intensity xxi, pain in knees and elbow on movement, urine passed involuntarily. Slight delirium supervened, and death took place xxiv. Fundus declined below pelvic brim vii. Lochia changed from free red to scanty pink iv, and ceased viii, but purulent discharge x—xiv. Vaginal examination, ix, revealed nothing abnormal in pelvis. Perinæal wound healthy. No abdominal distension or tenderness. Appetite good throughout, asking, xvii, for beer and mutton chop, and to be allowed to sit up.—Intra-uterine douches of carbolic vi, vii, and viii. Bismuth and morphine. Ice cap and Sod. Salicylat.

Post-mortem.—No general or local peritonitis. Ecchymoses on visceral pericardium and on visceral pleura. Vegetations on mitral and tricuspid valves, to which adhere decolourised clots, but it is uncertain whether ulcerated or not. Hypostatic pneumonia. No pus anywhere. Uterus healthy. Ovaries healthy. Tubes not mentioned. Left pampiniform plexus blocked, clot commencing one inch from uterus. The clot is old, partly decolourised, firm, adherent, and sweet. Large yellowish infarct in right kidney (estimated a fortnight old).

5. Hosp. Rep. 330. Admitted 23rd December, 1883. Died 8th January, 1884. Tedious first stage, but otherwise normal and easy labour. Syphilitic subject. No laceration found. 1-para.

Temp. rose suddenly iii to 103·4°, varied between that point and 104·6° till ix, when it fell, and became subnormal xi—xiv, with occasional rises to 102°.—Very little after-pain ii. Shivered iii, and again iv. Signs of bronchitis appeared iii, abdominal distension and tenderness iv,

involuntary micturition with offensive lochia and urine vii and viii. Slight delirium ix. Persistent diarrhœa set in and vomiting xii. Patient became unconscious xvi, and died xvii. Fundus quickly declined. Presence of exudation in pelvis ascertained by vaginal examination xi. Lochia free red for first five days, scanty yellow and occasionally blood-stained till cessation xii.—Fomentations to abdomen. Ice cap. Sod. Salicylat. Catheterism. Bismuth, morphine, and hydrocyanic acid.

Post-mortem.—Old pleuritic adhesions. Hypostatic congestion and bronchitis. Fibroid induration of heart and heart valves, spleen, and kidneys, which, in addition, are large and pale. Peritoneum, except in pelvis, healthy. Recent adhesions of uterus in Douglas's pouch. Ovaries pale and large, but otherwise healthy. Uterus well involuted, and presents nothing abnormal on internal aspect. Tubes healthy. At upper part of anterior vaginal wall are two holes with clean-cut edges, each the size of a sixpence, one on either side of the middle line, with a similar but smaller hole, not larger than a lentil, below and between them. They intercommunicate, and lead to a cavity rather larger than a crown piece. The wall of this cavity is infiltrated with reddish-yellow material, and in two spots, which are adjacent to softened and infiltrated parts of the mucous membrane of the bladder, is in a sloughing condition. An extension of this cavity runs towards the base of the broad ligaments on either side, and on the right reaches very close to the inflammatory focus there situated. The left broad ligament presents no such infiltration, but that on the right extends upwards into the iliac fossa of the same side, where it follows the course of the ureter to the kidney, and extends forwards along the round ligament as far as the internal abdominal ring. Beads of pus having a chain-like arrangement are collected in either broad ligament in the space bounded by the Fallopian tube above, and the ovary and its ligament below. On the posterior wall of the uterus beneath its peritoneal coat are several small purulent collections, gener-

ally not larger than a pea, but one is as large as an almond. Many of these collections are almost solid in consistence.

6. Hosp. Rep. 38. Admitted 23rd February, 1884. Died 27th March, 1884. Tedious labour with generally contracted pelvis. 1-para. Inertia and post-partum hæmorrhage to the extent of 30 oz. Fourchette lacerated, but no deep tear.

Temp. began to rise ii, and reached 103·2° on iii. From this point it gradually declined with slight remissions to 101° on viii, but on ix again rose to 103·4°, continuing between 102° and 105° until death occurred.—No after-pains. No abdominal distension or tenderness, the patient sleeping and eating well to within a few days of death. Slight frontal headache on x, replaced by occasional delirium, slight from xii to xxxiii, after which it became a prominent feature. Slight pain and swelling in right shoulder from xii and in right hip on xxix. Slight bronchitis from xii. Lochia not offensive, free and red for first four days, yellow after, ceased xvi. Laceration healed. Fundus declined naturally and reached brim vi. Cervix by vaginal examination on xxviii found to be fixed, but no deposit of appreciable thickness could be felt. Milk came in slowly on iv and v, plentiful on vi, but disappeared gradually after xv. Strength began to fail from that date, and death took place on xxxiv.—Sod. Salicylat., quinine, and digitalis. Stimulants.

Post-mortem.—Mitral valves slightly and one of tricuspid valve flaps much thickened. Œdematous lungs. Liver, spleen, and kidneys present nothing beyond ordinary signs of fever. Pelvic organs, with the exception of prolapse of left ovary into Douglas's pouch, look healthy from abdomen, but on cutting into uterus pus exudes from sinuses over situation of placental site (left posterior part). Adjacent uterine veins contain adherent clots, and also both iliac veins. Similar clots are found in vena cava as high as first lumbar vertebra, and in femoral veins as low as middle of thigh. Uterus appears very well involuted. No mention of tubes. Cervix and vagina normal.

7. Hosp. Rep. 63. Admitted 2nd March, 1885. Died 11th March, 1885. Advanced phthisis, very ill on admission. Severe cough for six months previously and hæmoptysis. Normal labour, 4-para.

Temp. immediately after labour 100·4°, but same evening rose to 103·4°, and persisted with variable remissions at 103°—104° till death.—Little milk appeared in breast iii. Diarrhœa set in iv. Distressing cough and dyspnœa persisted, patient became gradually weaker and died ix. No abdominal pain or tenderness. Lochia not offensive, scanty pink throughout except vi and vii, when they were yellow. Fundus steadily declined, extending four inches above pubes vi.—Morphine linctus. Ipecacuanha. Bismuth. Stimulants.

No post-mortem could be obtained.

8. Hosp. Rep. 106. Admitted 14th April, 1885. Died 22nd April, 1885. Advanced phthisis, very ill, with temp. 101·6° on admission. Normal labour, 8-para.

Temp. fell below 100° after labour, but rose same evening, persisting at 102°—104° with slight remissions till death.—Little milk appeared in breasts ii. Weakness increased, dyspnœa at times became excessive, and death occurred vi. Lochia free red for first two days, scanty pink after; not offensive. No abdominal pain or tenderness. Fundus extended but three inches above pubes ii.—Ipecacuanha. Stimulants.

Post-mortem.—Both lungs riddled with cavities, adherent. Tubercular and purulent glands in mediastina. Liver adherent. Kidneys large and pale. Pelvic organs healthy, 2 oz. clot adherent to placental site and 2—3 oz. fluid blood in uterine cavity.

9. Hosp. Rep. 244. Admitted 22nd August, 1885. Died 7th September, 1885. Mercurialism and morphism. Already reported. See Dr. Dakin's paper on "Mercurialism" in 'Obst. Trans.,' vol. xxviii, 1886, p. 290.

10. Hosp. Rep. 293. Admitted 1st October, 1885. Died

19th October, 1885. Post-partum hæmorrhage to the extent of 50 oz.; otherwise normal labour. No laceration noted. 1-para.

Temp. began to rise iv, and reached 101°. Slight shivering fit on vi, and again on viii, when 102·8° was reached. Next day with severe rigor temperature rose to 105·8°, and from this point was very irregular, marked remissions and intermissions, followed by repeated shivering fits and rigors, occurred during the next three days, but on the whole the fever declined, and temp. apparently normal during the last few days of life.—No after-pains and no distension of the abdomen nor pelvic pain till xi, then slight and soon passed off, but returned xiii. Epigastric pain ix, also slight and evanescent, but returned with hiccough xvii. Feeble, irregular, and intermittent pulse, and occasional cardiac bruit from x, more distinct subsequently. Persistent vomiting and purging from xii. Continued hitherto to take nourishment well, but strength now began to fail rapidly. Passed dejecta unconsciously from xv, gradually sank and died xviii. Lochia variable in amount; red or pink till x; stopped xi; yellow, scanty xii; ceased permanently xiii; offensive vii and viii. Fundus declined slowly, remained higher than usual, being four and a half inches above pubes, viii. Nothing abnormal found by vaginal examination xii. Milk came in iv, but not freely. Nipples sore vi, afterwards milk more plentiful, but almost disappeared ix.—Wet pack, bismuth, stimulants.

Post-mortem.—No peritonitis. Right ovarian vein divides and enters vena cava inferior by two openings an inch apart, both of which are plugged with soft, highly organised, adherent clot, breaking down in the centre. The ovarian vein is blocked by chocolate-coloured, semi-fluid clot, which extends downwards to the ovarian plexus of the same side, but ends abruptly opposite the inner border of the ovary, and on carefully slitting up the uterine sinuses nothing abnormal discovered. Abscess in right suprarenal body the size of a walnut: the plexus of veins lying between this and ovarian vein is composed of thick-walled vessels,

which are matted together and filled with semi-fluid grumous material. All other veins healthy. No plugging on opposite side. Ovaries and tubes normal. Hæmorrhagic spots, infarcts, and minute abscesses in kidneys, spleen, and lungs. Petechiæ under serous covering of lungs, heart, liver, and intestine, beneath endocardium, and beneath mucous membrane of stomach and intestine.

11. Hosp. Rep. 343. Admitted 26th November, 1886. Died 1st December, 1886. Eclampsia supervened during first stage of labour (two fits of epileptiform character). Forceps delivery under chloroform. Stillbirth. Manual removal of placenta. Perinæal laceration. 1-para.

Temp. 100·4° i, rose to 104° ii, but declined to normal iii. Began to rise again during last twenty-four hours, and reached 105° just before death.—Fits continued after delivery, two i, and no less than twelve ii. Patient then sank into semi-comatose condition, from which she never rallied. Jaundice and vomiting set in, and herpes labialis appeared v. Death vi. Lochia changed from free red to scanty brown v, not offensive. Fundus declined to three and a half inches above pubes iii, and there remained; laceration healed. No milk appeared. Urine drawn during labour deposited one-fourth albumen with heat and nitric acid, and was found to contain many fatty and granular, and few blood and hyaline casts. Albumen decreased to a trace iii, but afterwards increased.—Croton oil by mouth, bromide and chloral enemata. Chloroform inhalations. Dry cupping. Ice cap.

Post-mortem.—Pelvic organs healthy. Half ounce dark fluid blood in uterine cavity. Pelvic veins normal. General deep icteric tint. Gall-ducts healthy. Liver substance pale, soft, and friable, granular on section; capsule rather adherent. Kidney substance very tough, and capsule adherent, pale on section. Brain more vascular than normal, with many fine extravasations on and between convolutions. Subpleural petechiæ. Heart, spleen, and lungs normal.

12. Hosp. Rep. 328. Admitted 29th October, 1887.

Died 31st October, 1887. Normal labour. Slight labial tear. 1-para.

Temp. ran up from normal to 105·2° in first twenty-four hours, then declined to normal, but again rose, and reached 104° at death.—Severe headache complained of soon after delivery. Eclampsia supervened twenty-four hours after labour; ten fits of epileptiform character followed one another in quick succession. Patient sank into semi-comatose state, and died thirty-six hours after delivery. Lochia free red i, scanty ii, not offensive. Urine on each occasion drawn by catheter found to contain one-sixteenth albumen by heat and nitric acid.—Chloroform inhalations. Bromide and chloral *per rectum*. Pilocarpine hypodermically. Dry cupping. Vapour-baths.

Post-mortem.—Pelvic organs normal except ovaries, which are very œdematous and contain numerous small cysts up to size of a pea. Heart and lungs healthy. Kidney pyramids normal, but cortical substance diminished in quantity and light in colour. Liver light in colour, and somewhat nutmeg in appearance on section. Brain not examined.

13. Hosp. Rep. 334. Admitted 2nd September, 1888. Died 23rd September, 1888. Contracted pelvis. Unsuccessful attempts to deliver with forceps made, and vagina and cervix lacerated before admission. Subsequent application of forceps under chloroform unsuccessful. Cephalotripsy. Lacerated perinæum unsutured. 2-para.

Temp. began to rise gradually from iii, and reached 102·4° ix, and, with exception of transitory rise to 104·2° xiv, remained 102°—103° till death.—Extreme exhaustion followed labour. Vomiting occurred iii, and rectal alimentation resorted to. Perinæum sloughing iv, vagina vii, iodoform bougie inserted; urine offensive, boric acid irrigation of bladder. Lochia changed from free red to pink on vi, and to yellow on x; offensive from iv onwards. Frequent douches of iodine used from vi. General condition improved during first fortnight. Appears to have had a fit xiv, and developed acute mania, necessitating return to

rectal alimentation and use of œsophageal tube. Suddenly became rational xvi. Weakness increased. Delirium xxi. Died xxii.—Stimulants.

Post-mortem.—Sloughs of perinæum, vagina, and cervix. Body of uterus healthy. Tubes not mentioned. Ovaries normal. Abscess beneath right iliacus connected with slough on vaginal wall, situated one inch below cervix on right side. Both broad ligaments contain caseous deposits, and the cellular tissue is hard and dense. No indication of peritonitis.

14. Hosp. Rep. 381. Admitted 4th October, 1888. Died 12th October, 1888. Normal labour. Slight perinæal tear. 1-para.

Temp. began to rise iii, and reached 101°, ran up to 104·4° v, but fell immediately. Rose from normal to 104·4° again viii, but declined immediately, and ran up again to 103° just before death.—Breasts became distended iii, but patient seemed going on well till v, when perinæal tear looked unhealthy; headache. Lochia changed from free red to scanty pink vii, offensive from vii. Rigor viii, slight abdominal pain and tenderness. Patches of phlegmonous cellulitis appeared on left shoulder and buttock ix, and spread rapidly; buttock incised freely under chloroform, gas and sanious fluid escaped; oppression at chest; collapse and death same day.—Quinine. Poultices. Sublimate substituted for salufer day before death, and intra-uterine douche given ix, washing out offensive membrane and clot from cervix.

Post-mortem.—Rapid putrefactive changes in organs and tissues. Gangrenous cellulitis of shoulder and dorsum, back of left thigh and calf, in region of left ankle-joint, and on sole of right foot (surmounted by large bulla containing sanious fluid). Black and sloughy discoloration can be traced almost continuously from slight tear of perinæum to gangrenous focus in left buttock. Blood-stained fluid in pleural, pericardial, and peritoneal cavities. Heart cavities contain tarry blood. Marked post-mortem stain-

ing of endocardium. Femoral veins and veins of broad ligaments filled with dark, semi-fluid blood-clot. Some of sinuses beneath placental site filled with yellowish-brown grumous material, uterus otherwise healthy. Ovaries and tubes healthy. No purulent collections. Submucous hæmorrhages in bladder.

15. Hosp. Rep. 236. Admitted 27th June, 1889. Died same date. Admitted on account of severe accidental hæmorrhage at seven and a half months. Rupture of membranes, artificial dilatation of cervix and podalic version under chloroform. Stillbirth. 5-para.

Post-partum hæmorrhage to extent of nearly one pint. Hand introduced. Collapse and death one and a half hours after delivery.

Post-mortem.—No abnormality beyond signs of hæmorrhage.

TABLE II.—*Showing the improvement which took place after May, 1884.*

	July 1st, 1882, to April 30th, 1884. **612** admissions.	May 1st, 1884, to June 30th, 1889. **2150** admissions.
Death-rate from all causes	1 in 102 = 0·980%	1 in 239 = 0·418%
„ „ septicæmia and pelvic inflammation	1 in 102 = 0·980%	1 in 717 = 0·139%
Cases requiring transfer from all causes (excluding scarlatina)	1 in 34 = 2·941%	1 in 215 = 0·465%
„ „ „ „ septicæmia and pelvic inflammation	1 in 43⅜ = 2·287%	1 in 1075 = 0·093%
Cases detained over three weeks from all causes	1 in 11⅛ = 8·986%	1 in 82¾ = 1·209%
„ „ „ „ „ „ septicæmia and pelvic inflammation	1 in 14⅝ = 6·862%	1 in 430 = 0·232%
Percentage of labours followed by fever from all causes	83·006%	40·651%
„ „ „ septic fever	40·522%	2·465%
Daily percentage of patients in hospital with fever from all causes	*39·158%	*8·313%
„ „ „ „ „ septic fever	*26·882%	*1·598%
Average duration of fever (per pyrexial patient)	*7·689 days	*3·080 days
Average height of fever do.	*102·537° F.	*101·666° F.
Average amount of fever from all causes per patient. [*Approximate fever-rate*]	*16·213†	*2·029†
„ „ „ „ per admission. [*True fever-rate*]	17·184†	1·049†
septic fever per admission. [*Septic rate*]	13·169†	0·462†

* These figures represent the mean of the percentages and averages calculated for each month before and after May, 1884. They are therefore but approximately correct for the whole of each period. The improvement under each of these headings is in reality rather greater than is shown in the Table. The figures given under the other headings are calculated out from the original data.

† In days × degrees above 100° F.

III. *The service of the Hospital during this septennial period; increased attention to points of general hygiene; constant use of antiseptics.*

(Received December 10th, 1889.)

(*Abstract.*)

A description of the Hospital and of the method in which its service has been conducted is detailed. Such alterations of a general hygienic nature as have been effected during the period under consideration are dwelt upon.

Attention is directed to the fact that during the whole of the time the same principles have prevailed—antiseptics have been in constant use, but the details have been changing, especially with regard to the strength and character of the solutions employed. These will be considered in detail in the two succeeding sections.

About four years ago, through the instrumentality of Dr. Priestley, the Fellows of this Society were made conversant with the management of some of the lying-in hospitals in the north of Europe. I feel, therefore, encouraged to place on record a short description of the service of the hospital which has provided material for the present paper. Such description will serve as a fitting prelude to the changes which have been effected in the service during the period now under consideration.

Site and Structure.—As regards the General Lying-in Hospital no structural alterations have taken place during the septennial period above referred to, nor indeed for some years before that. Founded in 1765, the hospital occupies a position on the south side of the Thames, in the densely populated part of Lambeth originally and not inaptly called "The Marsh." The present building, erected sixty years ago, may be said to comprise eight wards for the accommodation of lying-in patients, distri-

buted on the ground and first floors. Most of the lying-in wards contain three beds apiece ; one rather larger than the rest has four, the convalescent ward four, the isolation one—giving a total of twenty-four beds. A clear cubic space of 2000 feet is allowed for each bed. Each floor is provided with a labour ward for the reception of one, or, if occasion require, of two patients.

The walls and ceilings of all the wards are painted. An attempt has been made to polish the floors, but, except in one of the labour wards (which was laid afresh with teak four years ago), was abandoned in consequence of the unsuitable nature of the surface presented by the old deal boards.

Drainage.—Closets and slop-sinks are provided on each floor, built out in a turret from the main building, and are so constructed as to include a passage which is shut off from the corridor by doors and ventilated by means of open windows on either side. All the drains run outside the building, and are furnished with traps for inspection and ventilation in the four-foot area which surrounds the hospital on the basement level. The drains are disconnected with the main by a diptrap, and are flushed automatically every twelve hours by means of a 100-gallon tank placed in the tower which surmounts either wing of the building. The soil-pipes are ventilated by a continuation upwards of the shaft above the top of the building.

Ventilation and Warming.—At very considerable outlay hot-air pipes had been laid on throughout the hospital, and each ward had been provided with an outlet ventilating shaft; but so inefficient did this method of ventilation prove that for the last ten years they have been discarded. A fire, however, is kept constantly burning in the open grate, and all the windows open at least six inches at top (the amount depending on the state of the weather), and the inside Venetian blinds turned so as to direct the incoming air-current upwards. In one ward, in which all the windows are on the same side, Tobin's tubes are also provided. Inlet ventilators are also placed near the floor

and Sherringham valves at the upper part of the outer wall in all the wards.

Clothing and Bedding.—Each lying-in ward and delivery room is provided with its own set of instruments and utensils. Hair mattresses are employed. The requisite supply of bedding and clothing is given out direct from the store for each ward. It is strictly forbidden to transfer clothing or bedding, or instruments, &c., from one ward to another. Both infants and mothers are provided with special clothing throughout their stay in hospital. A cot is placed in each lying-in ward for the accommodation of two children. The clothing in which the women enter is removed on admission. This used to be "stoved" and laid by in the hospital until the patient was discharged, but since the outbreak of scarlet fever, now nearly six years ago, it is in many instances removed by the friends and, together with a change of underlinen, brought back when the patient leaves. The laundry-work is contracted for outside the hospital. All soiled linen used to be soaked either in bay-salt solution, in order to remove the blood-stains, or for some time after the scarlet fever in 1 in 40 carbolic solution, but of late it has been despatched three times a week to the laundry without being previously dealt with. When returned, the clothes are put into a Fraser stove, which used to be raised to 220° F., but since the above-said scarlet-fever period to 250° F., more, however, with a view to airing it efficiently than of effectually destroying infection. Until within the last three years, not only the personal clothes and bedding, but the mattresses also were before use "stoved," with the idea of ridding them of possible infection, but, as in the stove with which the hospital is provided it was found impossible to maintain the heat for a sufficient time without injury to the fabric, this practice was discontinued. At the same time each mattress was numbered, and a register was instituted of each patient for whom it was used, so that any defect might be at once traced. Any mattress which has been used for a case likely to infect it

is, however, at once sent away in order to undergo disinfection by superheated steam.

Fumigation and Cleaning.—The labour wards are fumigated and washed after every six deliveries. The lying-in wards are disinfected after the beds have been once occupied. When a ward is vacated by a batch of patients, the bed-linen is removed, but the mattresses and blankets are suffered to remain suspended during the process of fumigation and removed afterwards. Five pounds of sulphur are burnt in the lying-in and two pounds in the labour wards. The ceiling, walls, floor, bedsteads, &c., are then washed down with carbolic solution 1 in 20. During the last three years the fumigation has been performed between each batch of patients, the additional washing between every other batch. Before that it was the practice to fumigate, to wash, and then to fumigate again, not between every batch, but between every other batch of patients.

Staff.—Besides the physicians, who visit twice a week, the staff consists of a house physician, who usually remains in office for about six months and resides continuously in the Hospital; a matron, who manages the housekeeping and superintends the nursing, and a head midwife, who supervises the cases in the labour wards. These are the only permanent members of the resident staff. But the hospital possesses a flourishing training school, both for midwives and nurses. The former are received into the hospital for a period of three, the latter of two months. No pupils from outside are admitted, but there is a large extern department connected with the hospital served by separate midwives, who reside in their respective districts; and, though the pupil midwives attend during part of their training, on cases in the home district, they are lodged meanwhile in the house of the midwife under whose superintendence their cases are conducted, and are not permitted to take part during that time in practical work within the hospital. While on duty within the hospital, both midwives and nurses are required to dress in washing material. Separate day nurses are provided for each ward, and a

separate night nurse for each floor. The nurses assist at the labour cases in rotation.

Admission of Patients.—Patients are admitted by letter. The only applicants considered unsuitable are those affected with foul wounds, which would entail risk to other patients. Single women in the first confinement are admitted on special conditions.

Conduct of Labour.—Patients are more or less advanced in labour on admission, and are conducted at once to the labour ward. They are immediately dressed in hospital clothes, and in all cases where time will allow the passages are irrigated with three quarts of antiseptic solution before delivery, the douche being repeated if the labour be prolonged. One or more such vaginal douches at a temperature of 115° F. are invariably given after labour is complete, and any considerable tears about the vulva are immediately closed by suture.

Conduct of Lying-in.—Two hours later the patient is removed on a trolley from the delivery-room to the lying-in ward. Patients are restricted to a slop diet until the bowels have been freely relieved, but generally on the third day fish and afterwards meat is given. A liberal supply of milk is allowed, but no stimulants unless specially ordered. Prior to 1884, however, it was the rule to give beer with dinner after the fifth day. It was discontinued on the ground that the patients were frequently rendered uncomfortable and feverish for a few hours after it had been partaken of, and subsequent experience has tended to confirm this when it has been given in individual cases. After the fifth day, the patient's friends are permitted to visit on two afternoons in the week. As a rule, patients are allowed up in a tentative way on the ninth day, and all are carefully examined by the visiting physician previous to departure.

Antiseptic Measures.—The vaginal douche at a temperature of 110° F. is employed as a routine measure night and morning until the lochia have ceased. From three pints to two quarts of the solution are used on each occa-

sion. Pads of absorbent cotton and oakum and latterly of sublimated wood-wool are used instead of diapers, and when removed are immediately burnt. Cotton is also employed instead of sponge, and destroyed in the same way. The external genital organs are washed with the same antiseptic solution as the douche.

In each delivery room and lying-in ward three basins are provided—one for washing with soap and water and the other two for disinfection with antiseptic solution, one for the hands, the other for instruments. Immediately before and after touching the genital organs of any patient, it is strictly enjoined that the hands and wrists should first be washed and afterwards thoroughly rinsed in antiseptic solution. Special attention is directed to the nails. All instruments such as catheters and vaginal tubes, when not in use, are constantly kept in antiseptic solution. An antiseptic lubricant is also used.

It will thus be seen that precautions are taken not only to prevent the introduction of infection into the hospital, but also to prevent it from being spread from ward to ward or from patient to patient. These precautions are admittedly imperfect in certain particulars. I need but instance the admission of visitors and the employment of the same nurse in the delivery and lying-in wards in this connection. It is difficult, however, to see how, short of having a separate room and a separate nurse to each patient, more stringent regulations could be laid down with a view to prevent the transmission of infection from patient to patient.

Certain it is that the service of a lying-in hospital necessitates special precautions, for, owing to the close proximity of patients, the risk of conveying infection is greater in such an institution than in private practice, where they are more scattered. But the risks are precisely the same in kind, the difference is merely one of degree. The same principles underlie the methods of precaution. It is, therefore, an easy matter to adapt the details of the one to the practice of the other. It is thus that the ser-

vice of an hospital finds its echo outside. In both strict adhesion to points of detail, founded on a rational understanding of the principles involved, is called for. Without this, error is liable to creep in and failure to ensue.

The charts before the Society record, with greater accuracy than any mere words of mine can describe, what may be attained by attention to points of detail. It is not the mere use of antiseptics, but the method of using them and the faithful carrying out of details concerning their application, which calls forth their special virtue.

Now, during the whole period to which these charts refer the same principles have prevailed—antiseptics have been in constant use, but the details have been changing, and even now cannot be looked upon as perfected. The result, as far as it goes, lies before you in the facts which I have already presented.

In justice to others, however, I would point out that the present condition of the hospital has resulted from an ever-increasing experience, and is the accumulative effect of the labours of those who have paid attention to the same subject. The condition of the hospital, even at the present time, cannot be regarded as absolutely perfect.

It now remains to consider the details which more particularly pertain to the various antiseptic agents employed. It is chiefly with reference to the strength and character of the antiseptic solutions that several important changes have been effected.

The reading of the remainder of this contribution was postponed till the next meeting.

JULY 2ND, 1890.

ALFRED L. GALABIN, M.D., President, in the Chair.

Present—39 Fellows and 6 Visitors.

Books were presented by Dr. A. H. F. Barbour, Dr. Lewers, and the London Hospital Medical Staff.

Alfredo Antunes Kanthack, F.R.C.S., and Frederick John McCann, M.B., C.M.Edin., were elected Fellows of the Society.

The following gentlemen were proposed for election :— Richard Ackerley, M.B., B.S.Oxon. (Ashburton) ; Arthur Norman Boycott, L.R.C.P.Lond. (Purley) ; William Henry Laurence Copeland, M.B.Cantab. ; Charles David Green, M.D.Lond., B.S. (Upper Edmonton) ; David Berry Hart, M.D.Edin. (Edinburgh) ; Harold Low, M.B.Cantab. (Sydenham) ; H. B. Osburn, L.R.C.P. (Clapham Common) ; A. W. Mayo Robson, F.R.C.S. (Leeds) ; John William Taylor, F.R.C.S. (Birmingham) ; Walter Tyrrell, L.R.C.P. Lond. ; Samuel W. Wheaton, M.D.Lond. (Clapham Common) ; and Edwin Francis White, F.R.C.S. (Putney).

DECIDUA VERA AND REFLEXA FROM A VERY EARLY ABORTION.

By G. E. Herman, M.B., F.R.C.P.

The specimen exhibited was passed by a nullipara. She began to be unwell five weeks after the last menstrual period, and on the second day of the flow complained of great pain, and passed the formation now exhibited. Dr. Herman was indebted to Mr. W. T. Lane for the specimen. It consisted of what looked like a cast of the uterus, and was evidently the decidua vera, formed by two triangular pieces of thick membrane, smooth, but traversed by many fine sulci within, rough without, and united at what corresponded to the junction of the anterior and posterior uterine walls by membrane so thin as to be almost translucent. One of these pieces had been slit up the middle, so as to show the inner surface of the membrane; and on it, close to the fundus uteri, was a little cup of membrane about large enough to contain a pea, evidently the decidua reflexa. The opening of the cup (decidual umbilicus) was jagged, as if it had been torn. The ovum had either escaped or was too small for identification. The decidua vera was $1\frac{3}{4}$ inches long by $1\frac{1}{4}$ wide, and $\frac{1}{6}$ of an inch thick at the thickest part. The decidua reflexa seemed hardly thicker than paper. The diameter of the cup which it formed was about $\frac{3}{8}$ of an inch.

The specimen was in the London Hospital Museum. Dr. Herman was not aware of any specimen, or drawing of a specimen, showing the human decidua reflexa at so early a stage.

FŒTUS, PLACENTA, MEMBRANES, AND FALLOPIAN TUBE; FROM A CASE OF RUPTURED TUBAL GESTATION, COMPLICATED BY A LARGE HÆMATO-SALPINX ON THE OPPOSITE SIDE.

By C. J. Cullingworth, M.D.

Dr. Cullingworth exhibited a fœtus, placenta, membranes, and left Fallopian tube, from a case of ruptured tubal gestation. Abdominal section was performed five and a half days after the presumed date of rupture, and the diagnosis was confirmed by finding in the peritoneal cavity, along with a large quantity of fluid blood, a fœtus $2\frac{1}{4}$ inches in length, still attached to the contents of the sac by the unruptured funis. The placenta (which was the seat of an extensive hæmorrhage of older date than the rupture, and was therefore of interest in connection with a paper recently read by Mr. Bland Sutton before the Royal Medical and Chirurgical Society) was partially separated and protruding from an aperture in the wall of the left tube measuring $1\frac{1}{4} \times 1$ inch. The right tube was distended with fluid, and formed a large, tense, unruptured, oblong tumour, situated behind the right broad ligament, and adherent over its whole surface. The fluid was viscid in character and of a dark brown colour, evidently consisting of mucus and altered blood. The effused blood and fœtal products had the odour of commencing decomposition, and the patient at the time of operation was septicæmic. Her condition for the first few days was not promising, but there was now every prospect of recovery.*

* The patient continued to progress satisfactorily. She left the hospital, six weeks after the operation, in good health, but with a small sinus, still discharging, at the lower angle of the incision.

Dr. Heywood Smith asked Dr. Cullingworth whether he had removed the hæmato-salpinx, and whether he had any theory as to the formation of the hæmato-salpinx on the right side, also whether its oncoming had anything to do with determining the rupture of the oviduct on the left, as it had ruptured rather early.

Mr. Doran was inclined to believe that, in some cases at least, the "apoplexy" of an ovum was produced by the application of the ligature at the operation, and consequent engorgement of the vessels on the distal side. Ecchymoses and extravasations were often observed on the surface of small ovarian tumours almost immediately after tightening of the ligature, and before the surgeon had time to cut through the pedicle. If such an accident could occur in a cystic tumour, where the vessels were usually normal and healthy, it must be much more probable and frequent in the case of a fœtal cyst of the tube, where the vessels were in many respects abnormal and diseased.

Dr. Cullingworth, in reply to Dr. Heywood Smith, said that the patient had missed two menstrual periods, and that fact, together with the length of the fœtus, seemed to indicate that the pregnancy had reached the beginning of the third month. He had not as yet been able to trace the history of the hæmato-salpinx of old standing on the right side which he had found and removed along with the adjacent ovary. With regard to Mr. Doran's remark as to the possibility of the clot in the placenta having formed as a consequence of the application of a ligature at the operation, he felt sure that any candid and careful observer, looking at the specimen, would see that such an explanation, in this particular case, was entirely out of the question. The clot was quite old.

FEVER IN CHILDBED.

Part I.—General Hygiene and Antisepsis (*continued*).

By Robert Boxall, M.B., B.C.Cantab., M.R.C.P.Lond.,
ASSISTANT OBSTETRIC PHYSICIAN TO, AND LECTURER ON PRACTICAL MIDWIFERY AT, THE MIDDLESEX HOSPITAL.

(Received December 10th, 1889.)

(*Abstract.*)

IV. *The comparative value of various antiseptic agents; antiseptics of the carbolic and Condy era; advantage of sublimate over carbolic acid and Condy's fluid—chemical incompatibility of the latter; gradual decline of septic influence effected by systematic attention to points of general hygiene, and by the progressive elaboration of antiseptic details.*

The particular antiseptic agents which have been used at different parts of the period now under consideration are given in Table III, and are also roughly indicated on Chart III.

This shows—

(1) *That the marked improvement which occurred in May*, 1884, *coincided in point of time with the substitution of sublimate for carbolic acid and Condy's fluid as the general antiseptics employed.*

(2) *That the gradual decline of septic influence which preceded that date was effected without change in the antiseptic employed.*

The antiseptics used during the carbolic and Condy era are considered in detail.

The bearing of the chemical incompatibility of the agents employed during the carbolic and Condy era is discussed.

The gradual decline of septic influence observed during the later months of that era, is attributed in part to the endeavour which was at that time made to obviate the reduction of the

permanganate in the solution employed for washing and douching the patient, and in part to the greater efficiency of the midwives and nurses, owing to the adoption of definite rules and directions for their guidance.

It is remarked that the systematic application of general hygienic and antiseptic rules to the service of the institution, not only led to a gradual reduction in the frequency and virulence of general septic illness, of pelvic inflammations, of unhealthy lesions of the genitals, and of mammary inflammations and of cases of cystitis among the puerperæ; but at the same time effected a decrease in the cases of purulent ophthalmia, of offensively discharging navel, of thrush in infants, and of abscesses on the fingers among the nurses.

It is concluded—

(1) *That the gradual decline in septic influence observed in the early months of* 1884 *was brought about in part by systematic attention to points of general hygiene, more particularly on the part of the midwives and nurses, and in part by the progressive elaboration of details concerning the use of the antiseptics employed.*

(2) *That the marked improvement which took place in May of the same year was effected in part by the substitution of sublimate for carbolic acid and Condy's fluid as the general antiseptics in use, and in part by the continuance of the same beneficial influences.*

Certain relapses which have taken place since that date will be dealt with in Section V.

In this and the following section the antiseptic agents in use at different parts of the period now under consideration will be indicated, and their relative value discussed.

In estimating their relative value, the death-rate, the general fever-rate, and above all the septic rate afford useful data. To the close relation of these several factors reference has already been made. Other indications of the decline of septic influence will be given in this section.

It will be shown—

(1) That the marked improvement which occurred in May, 1884, coincided in point of time with the substitu-

tion of sublimate for carbolic acid and Condy's fluid as the general antiseptics employed.

(2) That the gradual decline of septic influence which preceded that date was effected without change in the antiseptic employed.

It will be further demonstrated that two elements have combined to bring about this result. These are—

(1) Systematic attention to points of general hygiene, more particularly on the part of the midwives and nurses.

(2) Progressive elaboration of details concerning the use of the antiseptics employed.

It will be pointed out that these elements being established before, have continued in operation throughout the sublimate period, and on that account cannot be disregarded in estimating the value of sublimate as compared with carbolic acid and Condy's fluid. Nevertheless the elimination of septic influence at that time was so complete, and has been so persistently maintained, as to establish fully the surpassing value of sublimate as an antiseptic.

Hitherto I have, in dealing with the service of the hospital, merely indicated the broad fact that antiseptics were employed for the hands, for instruments and utensils, for washing and douching the patient, and for lubricating purposes, but I must now mention the particular agents which have been used for these several purposes at different parts of this septennial period. They are given in the following table (*Table III*, p. 284), and are also roughly indicated on Chart III.

Until the beginning of May, 1884, both phenol and permanganate of potassium were employed, and from that time onwards perchloride of mercury, and for the most part perchloride of mercury only.

It is instructive to observe how closely variations in the condition of the hospital followed changes made in the antiseptics employed. I have already stated that the sudden fall in the fever-rate, which followed the substitution of sublimate for carbolic acid and Condy's fluid was in the main due to the practical abolition of septic influence.

The relative value, then, of these agents as antiseptics finds expression in the pyrexia chart, though not to such an extent as might be at first sight supposed. For though the sublimate shows an immediate, considerable, and sustained advance on the carbolic and Condy era, causes other than the mere change of antiseptic were already working in the same direction, and ever since have continued to exert the same beneficial influence. These causes I shall have occasion to specify presently, and to point out the part which they played in effecting this.

But in any case the improvement, taken as an index of the efficacy of sublimate as compared with carbolic acid, and more particularly of sublimate as compared with Condy's fluid requires to be considerably discounted, for reasons which will immediately appear.

To one matter of detail it seems to have been reserved for me to direct special attention. I allude to the incompatibility of the chemical agents employed as antiseptics. I must refer to my original communication* for particulars; it is sufficient for the present purpose to state that, taking corrosive sublimate, carbolic acid, iodine, salicylic acid, and Condy's fluid as examples, I showed that many instances occurred in which, when brought into contact one with another, or with certain lubricants, chemical action took place; and I here reproduce the annexed table for purposes of reference. The crosses in the table, which occur at certain intersecting points of the horizontal and vertical columns, indicate that interaction takes place between the agents which stand at the head of those columns. In condemning these admixtures as chemically incompatible, I am prepared to admit that in some instances the newly formed compounds may possibly be powerful antiseptics, though this remains to be proved; and I would submit that any observations made with a view to determine this point are practically valueless, unless either these newly formed compounds be isolated and

* "The Chemical Incompatibility of Antiseptic Agents," 'Brit. Med. Journ.,' vol. i, 1888, p. 898; and 'Lancet,' vol. ii, 1888, p. 993.

used in pure solution, or the admixture be made in such proportion that at least no appreciable excess of either one or other of the original antiseptic constituents be suffered to remain in the test solutions employed.

	1. Sublimate.	2. Carbolic.	3. Iodine.	4. Salicylic.	5. Condy.	6. Olive Oil.	7. Vaseline.	8. Glycerine.	9. Soap.
1. Corrosive Sublimate Solution (Perchloride of Mercury) . .	—	—	×	—	—	—	—	—	×
2. Carbolic Solution (Phenol) . .	—	—	×	—	×	×	—	—	—
3. Iodine Solution (Iodine and Iodide of Potassium)	×	×	—	—	—	—	—	—	×
4. Salicylic Solution (Salicylic Acid)	—	—	—	—	×	—	—	—	×
5. Condy's Fluid (Permanganate of Potassium)	—	×	—	×	—	×	—	×	×

We proceed now to consider the antiseptics of the carbolic and Condy era.

Prior to May, 1884, carbolic solution (phenol 1 in 20) was employed for hands, for instruments and utensils, both at the time of delivery and during the lying in ; for douching and washing the patient both carbolic and Condy were employed (phenol 1 in 40, permanganate of potassium 1 in 8000 = Condy's fluid ʒj to Oj), the latter before labour and in the lying-in wards, the former for the first douche after labour only—if even a second were required in the delivery room Condy was substituted ; for lubrication carbolised lard (1 in 20) was used until July, 1883, when carbolised oil (1 in 20) was substituted and used for that purpose both during parturition and puerpery.

Into this arrangement the importance of the chemical incompatibility of the agents employed intrudes itself.

As we are now dealing with points of detail, I shall dispose of the least important item, the lubricant, first. Now, carbolised oil (and a similar criticism applies to carbolised

lard) is little if at all superior from an antiseptic point of view to olive oil alone. To my mind it is a matter of little importance whether the lubricant be antiseptic as well as aseptic, provided whatever it may be used to lubricate be previously rendered aseptic. But carbolised oil, through its supposed antiseptic property, engenders a false sense of security which is apt to lead to the omission of this very precaution—to the disregard of more efficient outworks because its own position is considered impregnable.

But even this is a matter of secondary importance when it is considered that carbolised oil, like both the carbolic acid and olive oil from which it is made, destroy permanganate of potassium. Add to this the fact that the passages were saturated first with Condy's fluid, then with carbolic acid, and then with Condy's fluid again, and that it was the rule to soak the hands and instruments in carbolic solution before touching the genitals, and the additional fact that a very little carbolic will reduce a relatively large quantity of Condy solution (1 part of 1 in 20 phenol solution will turn brown at least 1200 parts of 1 in 8000 permanganate solution), it may be judged that this mutual destruction of the agents employed often led to the total annihilation of the Condy's fluid, and that the system of antiseptics was thereby reduced in efficiency.

Moreover, through the mere fact that the same douche apparatus was used for both solutions, and that the vaginal pipes were constantly kept in carbolic solution when not in use, it happened that, when I first became connected with the hospital, the permanganate in the douche was as often as not completely reduced before any of it was brought into contact with the genital passages, so that septic matter was afforded a ready opportunity of forcing the position.

It was our constant endeavour to prevent this, and to insist that no Condy douche should be given which had already turned brown, and that, when given, it should be continued until it returned unchanged in colour. To the measure of success which attended these injunctions may, I think, in part at any rate, be attributed the declension in

the fever-rate at the beginning of 1884, a gradual decline resulting, as I have already shown, almost entirely from a diminution of septic influence, which from first to last is as great as that which immediately followed the introduction of sublimate.

The fact, nevertheless, remains that during the greater part of the carbolic and Condy era, owing to their mutual antagonism which they had every opportunity of exercising, neither the permanganate nor the carbolic were, so to speak, allowed fair play. The permanganate being used in weak solution suffered most severely.

But, in addition to this defect in the regulations then in vogue, another important consideration demands attention as conducing to the decline in the general fever-rate during the later months of the pre-sublimate period.

For, even had the regulations possessed no flaw, it was impossible at that time to insure faithful adhesion to such as existed, considering that no systematic instructions were available for the guidance of the nurses. And especially does this become a matter of importance in an institution conducted on the lines of the General Lying-in Hospital, in which the patients are all attended by midwives, and nursed by women who are undergoing a course of two or three months' training with little or no previous hospital experience. When the ease with which, in such hands as these, the chain of rigid asepticism is liable to be snapped asunder receives due consideration, it is possible to gauge the advantage to be derived from a systematic method of working with a definite code of precise rules and directions, from which no departure should be allowed. When I entered on my duties as House Physician in September, 1883, no such method prevailed, and it was then possible to predict with no little degree of certainty how the patients admitted to any particular ward were likely to fare by the extent to which the nurse in charge had mastered the details of antiseptic midwifery. At that time temperatures of 104° F., 105° F., and 106° F. were

common incidents; a normal temperature throughout the puerperium was quite the exception.

But, as I have already shown, during the early months of 1884, despite the occurrence of scarlet fever cases, a very considerable improvement in the septic rate, and consequently in the general fever-rate, occurred; an improvement which is so steady and persistent as to stand out in strong contrast with the sudden rises and falls which precede it, and which, even before the introduction of sublimate, reduced the septicity and febrility to a point not previously reached.

This was, I believe, in no small measure attributable to the introduction at that time of definite rules for the guidance of the hospital staff. As, during the same time, the details of antiseptic treatment were one by one elaborated, these regulations advanced in completeness. Their systematic adoption led to a great advance in the efficiency of the nursing staff throughout the hospital.

Stadfelt, of Copenhagen, has expressed his belief that "the hygiene of a Maternity depends less upon its construction and upon its age than upon the hygienic principles upon which it is directed, and on the perseverance with which these principles are carried out in the daily service." This opinion I emphatically endorse.

I have shown that one of the most considerable improvements which took place during the seven years occurred in the early months of 1884, before the sublimate era dawned. I have stated that no structural alterations had been made during the whole of that time. I have recorded the endeavour which was then made to systematize the service of the institution upon hygienic principles. That the endeavour has been attended with a great measure of success cannot be denied. For not only were septic illnesses, pelvic inflammations, unhealthy lesions of the genitals, and I think I may add mammary inflammations as well as cases of cystitis among the puerperæ gradually reduced in frequency and virulence during the last phase of the carbolic and Condy era, but at the same time cases

of purulent ophthalmia and of offensively discharging navel, as well as of thrush in children and of abscesses on the fingers among the nurses, diminished in number.

This can mean one thing and one thing only—that septic influence was on the wane even before the sublimate era commenced.

Having now considered in detail the decline in the death-rate, in the general fever-rate, and in the septic rate, and also the changes which have been effected in the service of the hospital, I would present the following general conclusions:

(1) That the gradual decline observed in the early months of 1884, was brought about in part by systematic attention to points of general hygiene, more particularly on the part of the midwives and nurses, and in part by the progressive elaboration of details concerning the use of the antiseptics employed.

(2) That the marked improvement which took place in May of the same year, was effected in part by the substitution of sublimate for carbolic acid and Condy's fluid as the general antiseptics in use, and in part by the continuance of the same beneficial influences.

Having now ascertained what may be termed the normal condition of the hospital for each of these periods, an opportunity is presented of considering the effect produced by other influences. These will be discussed in the remaining sections of the paper.

In the following section certain relapses which have taken place will be considered.

TABLE III.—*Showing changes which were made in Antiseptic Agents employed.*

	Solution for hands, instruments, &c.	Solution for douching and washing patient—			Lubricant.
		(1) Before labour.	(2) Immediately after labour.	(3) During puerpery.	
	CARBOLIC	CONDY	CARBOLIC	CONDY	CARBOLIZED LARD (1 in 20)
	Phenol 1 in 20	Permanganate of potassium, 1 in 8000	Phenol, 1 in 40	Permanganate of potassium, 1 in 8000	
July 1st, 1883	Do.	Do.	Do.	Do.	CARBOLIZED OIL (1 in 20)
May 1st, 1884	SUBLIMATE	SUBLIMATE	SUBLIMATE	SUBLIMATE	SUBLIMATED GLYCERINE
	Perchloride of mercury, 1 in 1000	Perchloride of mercury, 1 in 2000	Perchloride of mercury, 1 in 2000	Perchloride of mercury, 1 in 2000	Perchloride of mercury, 1 in 1000
Sept. 21st, 1885	Do.	Do.	Do.	Do., 1 in 4000	Do.
Oct. 14th, 1885	Do.	Do.	Do.	Do., 1 in 2000 for first 4 days Do., 1 in 4000 afterwards	Do.
July 1st, 1886	Do.	CONDY Permanganate of potassium, 1 in 8000	SUBLIMATE Perchloride of mercury, 1 in 1000	SUBLIMATE Perchloride of mercury, 1 in 2000 for first 3 days Do., 1 in 4000 afterwards	Do.
Jan. 1st, 1887	Do.	Do.	Do., 1 in 2000	Do.	Do.
Aug. 14th, 1888	Do.	SALUFER Silico-fluoride of soda, 1 in 500	SALUFER Silico-fluoride of soda, 1 in 500	SALUFER Silico-fluoride of soda, 1 in 500	Do.
Oct. 11th, 1888	Do.	CONDY Permanganate of potassium, 1 in 8000	SUBLIMATE Perchloride of mercury, 1 in 2000	SUBLIMATE Perchloride of mercury, 1 in 2000 for first 3 days Do., 1 in 4000 afterwards	Do.

V. *Antiseptics of the sublimate era; measures taken to prevent deterioration of the solution; inferiority of salufer as compared with sublimate; advantage of antiseptic over mere cleanly measures; value of strong douche-solutions as compared with those of weak antiseptic power and of no antiseptic power.*

(Received December 10th, 1889.)

(*Abstract.*)

The antiseptics used during the sublimate era are considered in detail.

The measures taken to prevent deterioration of the solution are discussed.

It is pointed out that neither more general hygienic measures, nor the solution employed for the hands, instruments, &c., nor the lubricant, have suffered appreciable variation, and that the solution employed for washing and douching the genitals has been the only variable element.

Attention is also drawn to the following facts—

(1) That as no change has been made in the method of administering the douche, its mechanical and ecbolic effects have remained unimpaired.

(2) That as the strength and character of the antiseptic agent employed in the douche-solution has been the only variable factor, corresponding variations in the condition of the hospital afford evidence of their comparative value.

Such variations are shown to have taken place; for when the sublimate douche-solution was reduced in strength, and again when the sublimate douche-solution was replaced by salufer, the death-rate rose and septicæmia reasserted its influence. It is remarkable that the only three deaths which have occurred from septic poisoning during the last five years should have taken place in the two short intervals, amounting together to less than twelve weeks, during which these solutions were used.

The period during which salufer douches were employed is considered in detail.

It is pointed out that, as salufer was commenced in the middle of one and discontinued in the middle of another month, the advance in the fever rate and in the septic rate does not show to the full extent, when, as in the foregoing charts, all the cases for each month are included.

TABLE IV, however, unmistakably indicates a retrograde condition of the hospital during the eight weeks of salufer douching as compared with the fortnight which immediately preceded and which immediately followed. Compare also the figures given in Table IV with those given in the second column of Table II.

This shows—

(1) *That the death-rate rose, and from septic poisoning.*

(2) *That the proportion of labours followed by fever, and especially by septic fever, increased.*

(3) *That, in the febrile cases, both the average duration and the average height of the fever increased.*

(4) *That both the general fever-rate and septic rate advanced.*

Further, in virtue of this result, it is probable that had the sublimate not only of the douche-solution, but also of that employed for the hands, instruments, &c., and of the lubricant, been replaced by salufer, and had salufer been used in all cases, instead of in those only in which danger was least to be feared, the effect would have been still more disastrous.

It is concluded—

That salufer is inferior to sublimate as an antiseptic agent.

Incidentally evidence has been afforded—

(1) *Of the value of douche-solutions of strong over those of weak antiseptic power.*

(2) *Of the value of antiseptic over mere aseptic douche-solutions.*

The *routine* use *during puerpery* of weak antiseptic or of mere aseptic douche-solutions is deprecated.

By way of explanation the suggestion is put forth that septic material collected about the vulva may, in administering the douche, be carried into the uterine cavity, where, escaping immediate destruction, it is liable to become absorbed.

It is concluded—

That unless such an antiseptic solution be used as is capable of effectually and rapidly destroying septic material, and unless the

external genitals be carefully washed beforehand with a similar solution, the routine employment of the douche during puerpery is liable, from the danger of unavoidably introducing septic material, to be attended with positive danger to the patient, and that under such circumstances its mechanical and ecbolic advantages may be more than counterbalanced by its want of sepsis-destroying power.

Sufficient evidence has been produced to show that even with the routine use of strong sublimate solution the danger still lies less in mercurialism than in sepsis.

It is, therefore, concluded—

That unless and until the manifold sources of septic infection can be traced, and with certainty dealt with outside the body, the routine employment of the douche needs no defence.

Reasons for regarding the Condy douche of the pre-sublimate period as an element of danger are adduced.

Finally, the direct local effect of the different antiseptic agents on the tissues of the body is considered.

It is concluded—

That, though this question may have affected to some degree the comparative results obtained by carbolic acid and sublimate, it does not affect the value of the evidence which has been adduced in support of the inferiority of weak sublimate and of salufer douche-solutions.

In this section certain relapses which have taken place since the introduction of sublimate will be dealt with. It will be shown that one of these relapses was definitely associated with the substitution of salufer for sublimate in the solution used for washing and douching the patient.

Incidentally evidence will be afforded of the value of antiseptic over mere cleanly measures.

I proceed first to a consideration of the antiseptics of the sublimate era.

Since May 1st, 1884, sublimate solution (perchloride of mercury 1 in 1000) has been employed without interruption for the hands, for instruments, &c., and a solution of sublimate in glycerine of corresponding strength for lubrication.

Throughout the greater part of the time sublimate solu-

tions have also been employed for washing and douching the patient, but the strength of these has varied.

At first 1 in 2000 solutions were used before and after labour in the delivery rooms, and in the lying-in wards.

Owing, however, to the frequent incidence of cases of mercurialism,* and more particularly to the fatal case in which mercurial absorption played so prominent a part (see Fatal Case 9, p. 257), from 21st September, 1885, until the 14th of the following month, the douche given in the lying-in wards was reduced to half the strength (1 in 4000); but that in the delivery room, given both before and immediately after labour, remained the same as before (1 in 2000). Under this practice a death from septic phlebitis and general pyæmia soon occurred (see Fatal Case 10, p. 257).

In consequence of this from 14th November, 1885, the stronger douche-solution (1 in 2000) was continued for the first four days after labour, the weaker (1 in 4000) being substituted only at the end of that time. This practice was continued until the end of the following June.

In July, 1886, owing to the fact that the sublimate douche given before delivery tended rather to constrict the tissues of the cervix, it was omitted and Condy substituted (permanganate of potassium 1 in 8000). At the same time the sublimate douche given immediately after labour was increased to 1 in 1000; that given during the first three days of the puerperium (1 in 2000) and afterwards (1 in 4000) remained the same. If, however, any suspicion of mercurialism occurred, Condy was at once substituted.

Such substitution has been rarely called for, more particularly since the beginning of 1887 when the douche given immediately after labour reverted to the original strength (1 in 2000).†

This practice has continued until the present time, except for eight weeks in 1888—from the middle of August

* See Dr. Dakin's paper on "Mercurialism in Lying-in Women," 'Obstet. Trans.,' vol. xxviii, 1886, p. 281.

† For cases of mercurialism see 'Obstet. Trans.,' vol. xxx, 1888, p. 320.

until the middle of October—when salufer solution (silico-fluoride of soda 1 in 500 = gr. xx to Oj) was used for washing and douching the patient, both in the delivery rooms and lying-in wards, in all cases where there was no special reason to fear infection.

But during this short time two deaths occurred, the second being from hospital gangrene (see Fatal Cases 13, 14, pp. 260, 261), with the result that salufer was promptly abandoned.

It is important to bear in mind that throughout the whole of the time strong sublimate solution (1 in 1000) was used for hands, instruments, &c., and measures were taken to prevent deterioration of the solution. These measures call for brief mention here I may say at once that, as neither permanganate of potassium nor silico-fluoride of soda are incompatible with perchloride of mercury, no consideration of this kind need detain us.

Again, though for some time Condy irrigation has been employed before delivery, no important deduction on this score need be made, for any deterioration of the solution, which may have resulted from admixture with the small quantity of glycerine used in preparing the stock solution and for lubrication, has been guarded against by continuing the douche until it returned unaltered in colour.

Again, as regards the sublimate solution, every precaution has been observed to prevent contamination with soap (which throws down the perchloride as an insoluble mercurial soap), or with bright steel or copper (which seizes upon the metal of the mercury salt and deposits it in the metallic state). The importance of preventing even a slight degree of contamination from either source was at once recognised. Very little contamination in virtue of the attenuated strength at which the solution is used being sufficient to destroy the whole of the sublimate, every means was taken to guard against it.

The solution, therefore, has been exposed to no considerable deterioration.

When first employed, however, it was the practice to

make a concentrated aqueous solution which might stand by for weeks before it was all used, and thus become deteriorated by the alkaline constituents of the water which slowly precipitate the mercury in the form of calomel. But even this was subsequently obviated by preparing the solution for use directly from the concentrated solution in glycerine as delivered from the chemist, and since the beginning of July, 1886, by the addition of a small quantity of acid (Acid. Hydrochlor. dil. ɱss to Hydrarg. Perchlor. gr. j). Whatever the amount of deterioration from this source may have been, it does not tell to the detriment of the hospital in the latter half of 1884, during which time I can personally vouch for the frequent occurrence of such deterioration. I regret that I am unable to trace the precise manner in which the solution was prepared during the first half of 1885, and therefore cannot say what relation it may have borne to the relapse which then occurred.

Be this as it may, the important fact remains that for the last five years neither more general hygienic measures, nor the solution employed for the hands, instruments, &c., nor the lubricant, have suffered appreciable variation. On this account special interest attaches to such advance in the death-rate and in the fever-rate, and to such recurrence of septic illness as is associated with variation in the strength and character of the douche-solution. The solution employed for washing the external genitals has been invariably the same as the douche. The bearing of this is of considerable moment, as will immediately appear.

Now, apart from the antiseptic action imparted to it by the antiseptic agent, there are two ways in which the douche acts beneficially, of which the first is mechanical—a mere flushing out of the passages aiding the removal of detached portions of tissue and of blood-clot; the second, ecbolic—the temperature at which it is given (115° F. immediately after delivery, and 110° in the lying-in wards) stimulating the uterine muscle to action, and thereby preventing the formation and assisting the expul-

sion of retained products. This, however, would take place equally whether mere sterilised water, or salufer, or sublimate solution be employed.

It is, therefore, reasonable to conclude—

(1) That as no change has been made in the method of administering the douche, its mechanical and ecbolic effects have remained unimpaired.

(2) That, as the strength and character of the antiseptic agent employed in the douche-solution has been the only variable factor, corresponding variations in the condition of the hospital afford evidence of their comparative value.

I shall now show that such variations have occurred.

The charts show three relapses in the septic element—one in the first half of 1885, to which I have already referred, a second at the beginning of 1887, and a third in the autumn of 1888. This last, which appears the least important, is for reasons which I shall presently explain the most so. Two of the cases of septic poisoning proved rapidly fatal during this relapse, and on that account the record of the fever was cut short early. A similar fatality took place in the autumn of 1885, which for the same reason left but little trace on the fever chart.

Now, it is a remarkable fact that the only three deaths from septicæmia (see Fatal Cases 10, 13, 14) which have occurred during the last five years should have taken place in the two short intervals, amounting together to less than twelve weeks, during which either sublimate solution of diminished strength, or salufer were employed with the douche. For, even after allowing due prominence to the fact that in one of the cases sublimate alone was used, and that severe traumatic influences had been brought to bear upon it, the difference in the death-rate is very striking. It is obviously as unfair to include this case in one category as in the other. If it be excluded, two deaths from septic poisoning will be found to have occurred in 94 cases douched and washed with weak sublimate and salufer solutions, against one in 2026 cases in which strong sublimate solutions were used ; and, if it be included, three

deaths will be seen to have taken place from septic poisoning among 114 cases admitted while the weaker douche-solutions were in use, against no such death in 2036 cases admitted when the stronger douche-solutions prevailed.

With regard to the first of these periods, during which the sublimate douche of diminished strength was employed, the evidence of the relapse rests entirely on the single death from septicæmia, it is not supported by the occurrence of other septic cases. But as 27 patients only were treated in the same way, this result is not surprising.

The second period, during which the salufer douche was employed, calls for more extended comment.

I have carefully analysed the cases admitted from the beginning of August till the end of October—136 in all. Of these, 77 were washed and douched with salufer; 10 others distributed about among them, and in which from the character of the labour there was special reason to fear the introduction of septic material, were douched with sublimate entirely.

This investigation shows—

(1) That during the eight weeks of salufer douching two deaths occurred from septic poisoning, and, though severe traumatic influences had been brought to bear in the first, no such allowance can be made in the case of the second which followed a normal labour.

(2) That during the same period three additional cases of septic fever occurred, whereas during the first half of August, *i. e.* before salufer was introduced, and during the latter half of October, *i. e.* after salufer was abolished, no such case occurred.

(3) That some of the temperature charts during the salufer period were beginning to revert to the type witnessed during the carbolic and Condy era, and that the longer the salufer continued in use the more frequent and more striking became such instances.

These facts to my mind are of distinct significance.

That this retrogression does not find marked expression in the foregoing pyrexia charts may be readily accounted

for, when it is remembered that salufer was employed for eight weeks only, and was commenced in the middle of one and discontinued in the middle of another month, with the effect that the unsatisfactory salufer cases are (when the general fever-rate and septic rate are expressed as in the chart for the whole of each month) diluted by the satisfactory sublimate cases.

Moreover, in estimating the comparative value of the salufer and sublimate douche, the fact must not be lost sight of that in those cases in which septic infection was dreaded sublimate was alone employed. It is but fair to conclude that had this precaution been omitted, the comparison would have been still more pronounced.

Table IV (p. 294) sets forth the comparative result of the salufer and sublimate douching upon the 136 cases admitted during the three months.

Compare also the figures given in Table IV with those given in the second column of Table II (p. 263).

This shows—

(1) That the death-rate rose, and from septic poisoning.

(2) That the proportion of labours followed by fever, and especially by septic fever, increased.

(3) That, in the febrile cases, both the average duration and the average height of the fever increased.

(4) That both the general fever-rate and septic rate advanced.

I have already stated that it was in the antiseptic of the douche-solution only that any alteration was made. In virtue, therefore, of this result it is probable that, had the sublimate not only of the douche-solution but also of that employed for the hands, instruments, &c., and of the lubricant been replaced by salufer, and had salufer been used in all cases, instead of in those only in which danger was least to be feared, the effect would have been still more disastrous.

It is concluded—

That salufer is inferior to sublimate as an antiseptic agent.

Incidentally evidence has been afforded—

TABLE IV.—*Showing the effect of Salufer compared with Sublimate Douching.*

	Before salufer period. 18 admissions.	During salufer period. 87 admissions.	After salufer period. 31 admissions.
Death-rate from all causes	Nil	1 in 43½ = 2·298%	Nil
„ „ septicæmia and pelvic inflammation	Nil	1 in 43½ = 2·298%	Nil
Percentage of labours followed by fever from all causes	38·888%	56·321%	38·709%
„ „ „ septic fever	0·000%	5·747%	0·000%
Average duration of fever (per pyrexial patient)	1·857 days	3·265 days	1·500 days
Average height of fever do.	101·076° F.	101·712° F.	101·444° F.
Average amount of fever from all causes per admission. [*True fever-rate*]	0·636*	3·147*	0·838*
„ „ septic fever per admission. [*Septic rate*]	0·000*	1·310*	0·000*

* In days × degrees above 100° F.

(1) Of the value of douche-solutions of strong over those of weak antiseptic power.

(2) Of the value of antiseptic over mere aseptic douche-solutions.

Recognising the mechanical and ecbolic advantages of the douche, I was seriously considering the advisability of employing water merely sterilised by boiling—of using an aseptic in place of an antiseptic solution—for douching purposes during puerpery. But in virtue of the result now obtained—which I was very far from anticipating—of employing solutions of diminished antiseptic power, such an experiment does not seem justifiable. For if solutions of diminished antiseptic power prove inferior, still more would solutions of no antiseptic power (merely aseptic) show to disadvantage.

And, considering the results which have been obtained when the douche as a routine measure has been discarded altogether, I am forced to this conclusion—

That, unless the solution used be not only aseptic, but at the same time antiseptic and strongly so, the routine employment of the douche during puerpery is liable to be attended with positive danger to the patient, and that under such circumstances its mechanical and ecbolic advantages may be more than counterbalanced by its want of sepsis-destroying power.

I am of opinion that this may be explained by the fact that in the introduction of the pipe, even when an attempt is made to cleanse the parts beforehand, septic matter is still apt to lurk about perinæal lacerations and tears of the vulva, and may be carried by this means from the lower part of the vaginal strait to the upper part of the parturient canal, where, escaping immediate destruction, it is liable to become absorbed.*

I would, therefore, urge—

(1) That such an antiseptic solution should be used as is capable of effectually and rapidly destroying septic

* I have already shown by experiment that solutions introduced into the vagina may reach the uterine cavity, 'Obstet. Trans.,' vol. xxx, 1888, p. 308.

material, and that the external genitals should be carefully washed beforehand with a similar solution.

(2) That, failing this, the douche as a routine measure had far better be discarded during puerpery.

It will be observed that these remarks apply solely to *puerpery*, and to the *routine* use of the douche. I would on no account omit the routine use of the douche *during labour*, nor counsel its neglect *in certain cases* afterwards, even when the above precautions are not carried out; but I would strongly advise that, whether given as a routine measure or not, it should be used and used only in accordance with such precautions.

It may be urged against the routine use of the douche during puerpery that no necessity for it exists in the majority of lying-in cases. To this, I answer, Even so, it is the minority of such cases which benefit by the measure applied alike to the whole; and it is the difficulty of deciding beforehand which cases will fall into one category and which into the other that prevents it from being applied solely to the minority.

I have shown that this minority proved an undeterminable factor during the salufer period; and so it must always happen while patients are beset with so many possible sources of infection as exist in a lying-in hospital. Only when these sources of infection can be removed is it safe to dispense with the continuance of the douche.

I have produced sufficient evidence to show that even with the routine use of strong sublimate solutions THE DANGER STILL LIES LESS IN MERCURIALISM THAN IN SEPSIS.

Therefore I conclude—

That, unless and until the manifold sources of septic infection can be traced and with certainty dealt with outside the body, the routine employment of the douche needs no defence.

Reverting now to the douche-solutions of the carbolic and Condy era, it may be remarked that a like criticism applies to the Condy douche which was used during puerpery as to the salufer. The single carbolic solution which

was used immediately after labour, being, so to speak, a concentrated solution, suffered little deterioration in comparison with the much more attenuated permanganate solution which was used for the douche during puerpery. This, for reasons which I have already given, was more often than not reduced to at best a very weak antiseptic, or to a merely aseptic, solution.

Finally, there is one further consideration which calls for mention in estimating the comparative value of antiseptic agents. I refer to the direct local effect of these agents on the tissues of the body. With regard to the carbolic douche employed immediately after labour during the carbolic and Condy era, it may be urged that, entirely apart from their comparative antiseptic value, the carbolic, being far more irritating when locally applied, was more liable than the sublimate to affect injuriously tissues which were already in a more or less damaged condition, and to this fact may be attributed in some measure the superior results obtained when the former was replaced by the latter. To what extent this may have affected the result it is impossible to say. No such consideration, however, attaches to the changes which were subsequently made in the douche-solutions, for neither permanganate, nor weakened sublimate, nor salufer are as directly irritating to the tissues as either the carbolic or the strong sublimate solutions. This consideration, therefore, does not affect the value of the evidence which I have adduced in support of the inferiority of weak sublimate and of salufer douche-solutions.

General Summary of Part I.

(1) By a study of the general fever-rate, of the septic rate and death-rate, and by an analysis of the more severe cases of illness, the state of the hospital has been determined, and variations in its condition have been pointed out.

(2) The service of the hospital and the changes (both of a general hygienic nature and also such as pertain more particularly to antiseptics) which were effected, have been described.

(3) The coincidence of these changes with variations in the condition of the hospital has been traced.

(4) Upon these data it is concluded that a gradual improvement resulted, partly from systematic attention to points of general hygiene, and partly from practice in dealing with the antiseptics used; and that a further improvement was effected by the substitution of sublimate for carbolic acid and Condy's fluid as the general antiseptic in use, but that retrogression occurred both when the sublimate douche-solution was reduced in strength, and again when the sublimate of the douche-solution was replaced by salufer

(5) In virtue of this result it is contended that as an antiseptic agent sublimate is superior to carbolic acid and Condy's and also to salufer.

(6) Finally, that as the antiseptic of the douche-solution was the only element which suffered variation, the value of strong douche-solutions compared with douche-solutions of weak antiseptic power, and, *a fortiori*, the value of antiseptic compared with mere aseptic douche-solutions is rendered obvious.

Dr. Braxton Hicks said that it was by such papers as this that we should some day arrive at the solution of the cause of puerperal troubles. It was a question which naturally interested him much, for at the Dublin meeting of the British Association many years ago he had read a paper "On the Use of Antiseptic Uterine Injections after Labour with Offensive Discharges, as a Rule of Practice." On that occasion he was astonished to find this rule opposed by the late Sir James Simpson, who viewed with anxiety such treatment; at that time Dr. Hicks rejoined that he would rather have clean water than stinking discharges. He was therefore much gratified by the results shown in the paper. But he thought care was necessary in using the injections; and also he alluded to another risk, namely, the effect of much movement of the patient, which was liable to lead to expansion of the thorax, and thus to "insuck," whereby irritating material could be drawn in through any opening in veins or lymph-spaces, as Dr. Hicks had pointed out in a paper before the Medical Society and in the 'American Journal of Medical Sciences.'

Dr. Hayes regretted that Dr. Boxall had not included in his report the period when he and Dr. Fancourt Barnes were physicians at the hospital. They took up the work in September, 1879, after the complete reorganisation of the hospital, which he had

a large share in bringing about. Previous to the reorganisation he had attempted to introduce some antiseptic measures, but they had been strenuously opposed by the authorities and some of his colleagues. In 1879, upon the reopening of the hospital under an entirely new system, the antiseptic rules adopted were those drawn up by Sir Joseph Lister. Absolute phenol was the antiseptic used—1 in 20 for hands and instruments, and 1 in 40 for vaginal injections. Their results were highly satisfactory. He had had only one case of serious illness, and that was an instance of septicæmia induced by unquestionable disregard of the antiseptic rules. The patient, however, recovered. Dr. Hayes had adopted vaginal injections with 1 in 40, or 1 in 80 carbolic acid in every case for the first week after labour. Dr. Barnes used no vaginal injections, and his cases did equally well. He was struck with this at the time. He now thought that vaginal douching after labour as a general rule was unnecessary —indeed, with the ordinary run of nurses it was dangerous. Such nurses were careless about the cleanliness of the tubes, &c. He had therefore given it up, unless the lochia became offensive, or the patient showed symptoms of illness. In suitable cases he strongly advocated intra-uterine injections, but to be of value they should be copious, and the whole interior of uterus freely bathed. For this purpose his own tube, giving forth a spray, was very satisfactory. He had quite discarded all diapers, and used now antiseptic absorbent wool, such as that impregnated with salicylic acid or sal alembroth. During labour all vaginal examinations should be made with absolutely clean hands and carbolised glycerine (1 in 15).

Dr. Leith Napier congratulated Dr. Boxall on his elaborate statistical record. He thought that comparatively few men would have undertaken such laborious inquiry with so small a prospect of practical result. But Dr. Boxall had attained practical results. He had shown that, at least so far as lying-in hospitals were concerned, morbidity was greatly lessened by the routine use of mercurial douching. Previous speakers, especially Dr. Hayes, had anticipated many points about which Dr. Napier held strong convictions. There might be general agreement that routine douching was necessary or at least advisable in lying-in hospitals where large numbers of puerperal women were aggregated, but he much questioned if the same measures were required in private practice. He asked Dr. Boxall if he believed that mercurial douching was an absolute preventive of septicæmia. If there was no abnormal sign, did not Dr. Boxall admit that the possible and undisputed risks of douching, especially if syringes were used, were greater than the risk of waiting till indications arose? The ratio of possible mischief from a general employment of mercurials in non-septic cases must not be overlooked. For several years Dr. Leith Napier

had systematically ordered douching, but he had for some considerable time abandoned the practice unless increased temperature and pulse or local signs of toxæmia arose. In inflammatory puerperal cases frequent douching was hurtful; vaginal suppositories of iodoform were preferable. Mercuric perchloride was, on the whole, the best antiseptic for the purpose at present, but it had many objections. Of late he had used creoline, which seemed to answer well; it had the advantage of being non-poisonous. He trusted that Dr. Boxall would continue his work regarding the merits of the various antiseptic agents, and that eventually some other and better drug would be found to replace the perchloride.

Dr. WALTER GRIFFITH said that the question which would interest the great bulk of practitioners of midwifery was, How far were these precautions, which had been proved beyond possibility of doubt to be necessary to render safe the confinements of women collected together in lying-in wards and hospitals, to be adopted in the case of individuals confined separately in their own houses? It was obvious that the risk was greater in the former, but that the difference was not due to a difference in kind so much as in degree. It would be invaluable, but a very difficult matter, to obtain such tables as those compiled by Dr. Boxall of the latter class of cases in numbers sufficient for comparison. If the hands of the attendant and nurse, all the instruments and appliances, and the patient herself, were kept clean, all routine douching could be done away with. On the other hand, most people accustomed to habits of cleanliness preferred a douche of some kind night and morning for the first few days after labour.

Dr. CULLINGWORTH, as a member of the present staff of visiting physicians at the General Lying-in Hospital, expressed his grateful appreciation of the valuable paper to which they had listened. He (Dr. Cullingworth) came on the scene at a time when the victory over puerperal infection in that hospital was already nearly complete. He could therefore take no credit to himself for the excellence of its present condition. Indeed, a slightly retrograde movement had followed his appointment, for, in his desire to find an antiseptic which should be as efficient as corrosive sublimate and yet non-poisonous, he had thought it his duty to introduce salufer at the hospital as a substitute for corrosive sublimate in douching. Salufer had been most highly spoken of by a well-known professional chemist, who had made a series of experiments to determine its value as an antiseptic, and had been reported by Mr. Mayo Robson, of Leeds, to answer well in ordinary surgical practice. Notwithstanding this double recommendation, they began to go a little wrong from the time of its introduction, and at the end of two months he did not feel justified in continuing its use any longer. He therefore re-

turned to the sublimate douching, with the result that the patients at once began to recover more satisfactorily. He looked foward to a time when, with increased knowledge of the means of combating septic infection, douching could be safely abolished. At present, however, in hospital practice it seemed essential. In private practice he did not think it was so necessary. And, even as regards hospital practice, it must not be forgotten that in the lying-in hospitals of Boston and New York, the best results were not obtained until the douche was deliberately abandoned. Reverting once again to the disappointing results of the use of salufer, he might say that a possible cause of failure was the clogging of the valves and apertures of the apparatus by the salufer, which was thrown down from the solution in considerable quantity. In reference to the use of an absorbent substitute for the ordinary diaper, he could speak most highly of wood-wool pads. They were superior, in his experience, to pads of absorbent wool, and were now regularly used at the General Lying-in Hospital.

Dr. Boxall, in reply, thanked the Society for the attention which had been given to his paper. He would address himself briefly to the many important points raised by the several speakers in the discussion. He might add to his remarks that the intra-uterine douche was reserved for cases in which the hand or some instrument had been introduced into the uterus, or in which the fœtus was macerated or decomposed, or, again, in which clots or pieces of membrane were retained. In such cases it was his invariable practice to employ it, both in hospital and in private, immediately after labour. But during puerpery he introduced the tube into the uterus only in exceptional cases, and in these he usually employed a soft rubber catheter or piece of elastic tubing. He felt confident that much harm of one kind or another might be produced by the indiscriminate use of the uterine tube whenever the lochia became offensive. For, though these conditions were often associated, on the one hand, offensiveness of the lochia did not necessarily indicate septic decomposition, while, on the other, septic decomposition might take place without it. If, however, there was good reason to suspect the occurrence of septic decomposition in the parturient tract, he would proceed *seriatim* and examine first the parts about the vulva and lower vaginal strait (for it is in that situation that decomposition most frequently occurred), cleanse and wash them thoroughly with strong antiseptic solution. If that failed to reach the root of the mischief, he would next douche the vagina; and only after this had been done would he resort to intra-uterine douching. In this manner the risk, which he felt was very real, of carrying septic matter from the vulva or vagina into the uterine cavity, and thereby increasing the mischief, might be obviated, or at any rate diminished. Whether

the uterine tube be used or not, he would, when he had reason to suspect that decomposition had taken place, use a strong solution (perchloride of mercury 1 in 1000), and plenty of it. He considered that, in such a case, it was preferable to bring the full force of the antiseptic at once into play to running the risk of having to repeat the process. When the paper was written, Dr. Boxall was not aware that for a time after the re-opening of the hospital in 1879 carbolic acid, and carbolic acid alone, was used, and that the vaginal douche was only occasionally resorted to during puerpery. But this fact is important in virtue of the statement of Dr. Hayes that during this time there was less illness than during the subsequent carbolic and Condy era, when the douche was employed as a routine measure during puerpery. This, however, was precisely what Dr. Boxall would have anticipated. It bore out the contention expressed in the paper, that the Condy douche used during puerpery, owing in great part to the reduction of the permanganate by carbolic acid, possessed at best but weak antiseptic power, and that under such conditions more harm than good resulted from its routine employment. In private practice Dr. Boxall invariably employed for the hands, &c., sublimate solution 1 in 1000 (which he found far less irritating than carbolic acid solution 1 in 20), and a sublimate douche 1 in 2000 during labour and immediately after delivery—reserving the intra-uterine douche for such cases as those indicated above, and giving as a rule no douche whatever during puerpery. He looked forward to the time when the use of the douche could be similarly restricted in hospital practice; but it was so difficult to foresee the dangers to which individual patients were subjected, particularly when ministered to by unskilled midwives and nurses, that he could not at present advise its omission. Some such selection was attempted during the salufer period, but it was found impracticable. It was the rule at one time to insert an iodoform suppository into the uterus in all cases in which intra-uterine irrigation had been resorted to—not as a substitute for, but as an accessory to the douche. As far as can be gathered from the temperature charts, no advantage was gained by using them in this way. Dr. Boxall was not disposed to look upon the introduction into the uterus of an iodoform bougie as an efficient substitute for the intra-uterine douche. The precautions which he advocated in the use of sublimate were indicated in his paper on mercurialism. At least as far back as 1882, absorbent pads of cotton or of wood-wool had been used in place of napkins for hospital cases, and in private Dr. Boxall invariably recommended absorbent cotton. This pad was burnt after use; it cost no more than the washing of a napkin, and afforded greater comfort to the patient. Some years ago Dr. Boxall made, at the suggestion of Dr. Champneys, an investiga-

tion into the comparative power of absorption possessed by wood-wool and cotton. He found that both for water and for blood the sample of wood-wool was inferior in this respect to cotton. The faculty for absorption possessed by different samples of absorbent cotton varied very considerably, and it was quite possible that the wood-wool which was now manufactured was superior to that which was first put into the market. Lastly, with regard to the strength of the sublimate solution necessary to cope with sepsis, Dr. Boxall considered a solution of 1 in 1000 sufficient and more than sufficient to destroy any septic material with which it came into contact. He also believed that solutions of less strength were sufficient in many cases, because, in addition to the sepsis-destroying power of the solution, a very potent power of the same kind was possessed by the tissues of the body; and, where it was a question of attacking septic material in the passages, this must be taken into account. It was in those cases only in which the tissues (either locally or as the result may be of traumatism, or generally where mal-nutrition prevailed) had lost the power of resistance, and had gone over, as it were, to the side of the enemy, that the whole stress of preventing sepsis was thrown upon the antiseptic measures. This difficulty in gauging the resisting power of the tissues, added to that of determining the risks of infection, in individual cases, entailed the necessity of using strong solutions in all cases in order to prevent sepsis in a certain proportion. On this question, however, Dr. Boxall spoke with some diffidence at the present moment, as his intention was to say more on the same subject in a subsequent part of the paper on which he was still engaged.

OCTOBER 2ND, 1890.

ALFRED L. GALABIN, M.D., President, in the Chair.

Present—44 Fellows and 4 Visitors.

Books were presented by Dr. Carbonelli, Dr. Currier, Dr. Pinzani, and the Council of University College, London.

William John Gow, M.D.Lond ; Alfred A. Kanthack, F.R.C.S., and A. Aylmer Orr, M.A., M.B.Oxon., were admitted Fellows of the Society.

The following gentlemen were elected Fellows :— Richard Ackerley, M.B., B.S.Oxon. (Ashburton) ; Arthur Norman Boycott, L.R.C.P.Lond. (Rugeley) ; William Henry Laurence Coupland, M.B.Cantab ; Charles David Green, M.D.Lond., B.S. (Upper Edmonton) ; David Berry Hart, M.D.Edin. (Edinburgh) ; Harold Low, M.B.Cantab. (Sydenham); Harry Burgess Osburn, L.R.C.P. (Clapham) ; A. W. Mayo Robson, F.R.C.S. (Leeds) ; John William Taylor, F.R.C.S. (Birmingham) ; Walter Tyrrell, L.R.C.P.Lond. ; Samuel W. Wheaton, M.D.Lond. (Clapham); and Edwin Francis White, F.R.C.S. (Putney).

The following gentlemen were proposed for election :— John Dysart McCaw, F.R.C.S. (East Finchley) ; Hugh Jones Roberts, M.R.C.S. (Penygroes) ; and Henry Bartlett Shillingford, L.S.A. (Peckham Rye).

THE DEATH OF DR. J. MATTHEWS DUNCAN.

A VOTE of condolence on the death of Dr. J. Matthews Duncan, past President of the Society, was put from the Chair, in the following form :

> " The President, Council, and Fellows of the Obstetrical Society of London take the earliest opportunity of offering to Mrs. Matthews Duncan and family the expression of their deep sympathy in the great loss they and the profession had sustained in the recent lamented death of their highly distinguished Honorary Fellow, Dr. Matthews Duncan."

This vote was carried unanimously.

RIGHT OVARY AND TUBE DISTENDED WITH BLOOD.

By WILLIAM DUNCAN, M.D.

UTERINE APPENDAGES THE SUBJECT OF TUBERCULAR DEPOSITS.

By WILLIAM DUNCAN, M.D.

UTERUS WITH PRIMARY CANCER OF THE BODY EXTIRPATED *PER VAGINAM*.

By WILLIAM DUNCAN, M.D.

DELBASTAILLE'S SPECULUM *À GLISSIÈRES*.

By Alban Doran.

This instrument has been described and figured in the 'Centralblatt für Gynäkologie,' No. 18, 1890, p. 324. Mr. Doran stated that he had frequently used it, and found that it was a good form of speculum in many respects. First, it was made of metal and readily cleaned. Secondly, it was of the form of Fergusson's instrument—the best for general use—the easiest wherewith to get a good view of the cervix uteri. Thirdly, the sliding arrangement overcame the chief disadvantage of Fergusson's speculum. Dr. Delbastaille's instrument was split into two halves along its long axis. By sliding the upper half a little backwards, after the cervix had been brought well into view, more room could be gained for using a volsella, sound, or any long and straight-handled instrument. All who used Fergusson's speculum recognised how inconvenient it was whenever a long-handled instrument had to be employed. Dr. Delbastaille's speculum could also be used like a Sims's "duck-bill," as a handle was made to screw on to one half of the metal tube. This arrangement was very convenient for inspection of the clitoris, vestibule, meatus, and anterior vaginal wall.

TUBAL GESTATION REMOVED BEFORE RUPTURE.

By G. Ernest Herman, M.B.

The history of the case is published in the 'British Medical Journal,' September 27th, 1890. The points of

interest in the specimen were (1) its removal before rupture; (2) the patient had been previously cured by operation of a gestation in the other tube; (3) the fœtus had died early, and the placenta had gone on growing.

Microscopical report.—Microscopic sections from the wall of the tubal pregnancy had been made. Between the wall of the tube and the amnion, the space was chiefly filled with extravasated blood, in some parts quite recent, in others beginning to be organised. Recent blood was met with in all parts, close to the amnion as well as near the wall of the tube. Amidst the extravasated blood chorionic villi could be seen, many of them filled with blood. The wall of the tube was infiltrated with round cells, but not thickly, except in a few places. The muscular bundles were more separated than normal, and the fibres were slightly larger than usual. There were spaces that looked like the lumen of glands, but had no epithelial lining. No large decidual cells could be seen anywhere.

PELVIC ORGANS OF A PATIENT DYING FROM INJECTION OF ACID NITRATE OF MERCURY INTO THE VAGINA TO PRODUCE ABORTION.*

By John Phillips, M.D.

Dr. Phillips called attention to the site of the injection in the vagina, the untouched ten weeks' ovum, the congested condition of the right broad ligament and the general sloughing of the rectal mucous membrane. He deferred many interesting points in the case to a further contribution on the subject.

* For inquest, see 'Times,' June 4th, 1890; for trial, ibid., Aug. 2nd and 4th.

CASE OF SYMMETRICAL ERYSIPELAS, FOLLOWED BY PREMATURE LABOUR; ECLAMPSIA ON THE NINETEENTH DAY POST PARTUM; TWENTY-EIGHT PAROXYSMS; NO RENAL DISEASE; RECOVERY.

By Jamieson B. Hurry, M.A., M.D.

(Received February 18th, 1890.)

E. W—, æt. 35, vi-para; pregnant nine and a half lunar months.

September 7th, 1889, noon.—Seen for the first time this morning. Her previous history shows freedom from neurotic disease, and during the present pregnancy her health has been good until this morning, when (without discoverable cause) the following symptoms have appeared: severe headache, pains in limbs and loins, shivering, rapid pulse, hot skin, anorexia. At 10.30 p.m. she was suddenly delivered of child before arrival of doctor. Placenta expressed *à la Credé*, without a single vaginal examination.

8th, 2.30 a.m.—Post-partum hæmorrhage of moderate severity, arrested by vigorous kneading of uterus and large doses of ergot. A single exploration undertaken in order to remove clots from uterus. 9 a.m. She looks ill, with same symptoms as on September 7th.

9th.—In front of each ear, and extending perfectly symmetrically on both sides over an area equal to that of a florin, is an erysipelatous eruption. The skin over the affected area is hot, tender, swollen and pits on pressure, suggesting at first the possibility of deep-seated suppuration. No resemblance in other respects to scarlatina. No sore throat. Temperature 102·5° F.; pulse 125. Lochia natural, not offensive.

10th.—Patient seen by Mr. George May, F.R.C.S., in consultation. She presents all the local and constitutional symptoms of erysipelas. The eruption affects both sides

of the face symmetrically, and covers larger areas than yesterday, although these areas do not meet in the median line. Strict antiseptic precautions ordered, namely, boracic acid pads (instead of diapers), to be changed as rapidly as possible; carbolised steam to be diffused through room; semi-recumbent posture to be assumed for a few minutes twice a day. Vaginal irrigations forbidden; ventilation of room attended to.

11th.—Erysipelatous eruption has spread from the two areas first attacked and now covers most of the face. The constitutional symptoms are very severe. Pulse 132; temperature 104° F. a.m., 103° p.m. Lochia continue inoffensive. Urine free from albumen. Suckling discontinued, on account partly of the risk of infection, partly of the deficient supply.

12th.—Erysipelas covers the same extent as yesterday. Patient is taking food fairly well. Temperature 103·1° F. a.m., 104·4° p.m. Slight tympanites noticed to-day for first time.

13th.—Erysipelas is slowly receding. Lochia natural. Abdomen is tender and tympanitic. Temperature 102° a.m., 104·6 p.m.

17th.—Gradual improvement during last four days. Temperature is slowly falling. The abdominal tenderness has been considerable, affecting mainly the right inguinal and hypogastric regions. There have been no rigors nor any indication of septic mischief, except the abdominal tenderness and tympanites referred to above. Lochia natural; urine normal, free from albumen.

21st.—The tenderness in hypogastrium is much less marked. Patient looks better. Pulse 96; temperature 99° a.m. and p.m.

During the next four days patient appeared to be doing well in all respects. Her temperature had been normal; pulse about 80; tongue clean. The abdominal tenderness had almost gone. Lochia perfectly natural. Appetite good. There was nothing to indicate the approaching complication.

26th, 11 a.m.—Patient complains of severe frontal headache, but otherwise appears to be doing well. The peeling of the face due to the erysipelas has almost ceased; but there is a serous discharge from, and deafness of, the left ear. At 9 p.m. she was suddenly ceased with epileptiform convulsions involving the whole body. There was total loss of consciousness; pupils dilated, giving no reaction to light; conjunctival reflex abolished; slight foaming at mouth; urine passed involuntarily. By 10 p.m. consciousness had partially returned.

27th, 9.30 a.m.—There have been six more fits this morning, three being very severe, the last occurring while Mr. May and I were seeing her in consultation together. All the characters of eclamptic convulsions mentioned above were present. Chloral, gr. L, was given *per rectum*, and chloroform inhalations used. 8 p.m. Eight more fits occurred to-day in the course of one and a quarter hours, but less severe than those of the morning. During the afternoon patient has lain in a semi-conscious condition. Temperature normal.

28th, a.m.—Three more fits occurred during the night. Urine passed voluntarily for the first time since the onset of the fits; it contains no albumen. A careful search was made for any cause of the convulsive attacks, but without success. No local tenderness or pain, except headache. 8 p.m. Eight more fits have occurred since the morning, but of much less severity. In some of them only the facial muscles were involved, and consciousness was only partly lost. Temperature 99·6° F. a.m., 100° p.m.; pulse 100. The urine was tested whenever passed, but never contained any trace of albumen.

October 2nd.—During the last four days there has been a complete cessation of the attacks. Patient takes nourishment fairly well, but still complains of headache. Mental powers unimpaired. The discharge from the ear has ceased, and good hearing is regained.

13th.—Patient is well.

Remarks.

This case, of which the important features have just been narrated, is of peculiar interest from several points of view.

Firstly. Erysipelas attacking a woman immediately before labour, and apparently inducing premature delivery, is in itself a very unusual event.

Secondly. So far as I am aware, no case in which erysipelas has attacked opposite sides of the body simultaneously and symmetrically is on record. At any rate, so rare is this occurrence that at the famous discussion on "Puerperal Fever" at the Obstetrical Society in 1875, Mr. Jonathan Hutchinson, F.R.S. (speaking of the specificity of erysipelas) declared:* "We never see it (*i. e.* erysipelas) prevail symmetrically in the two halves of the body, as it certainly would do, if it were due to the introduction of any specific germs, which would develop in the same manner as we know the specific poisons of smallpox, scarlet fever and measles do."

In thus affirming that erysipelas may, from the commencement of the cutaneous eruption, involve two symmetrical portions of the body (and I would point out that this patient was throughout under the closest observation), I am glad to have the confirmatory testimony of so experienced and cautious an observer as Mr. May.

Thirdly. The possibility of erysipelas of the face attacking a lying-in woman without provoking puerperal septicæmia of any severity is also interesting. If, as appears to be established both by clinical observation and bacteriological experiment,† the same virus may provoke erysipelas and puerperal fever, we should perhaps have expected that a lying-in woman suffering from erysipelas of the face would run the greatest risk of puerperal sepsis, and yet in the case before us no symptom of such sepsis

* Cf. 'Obstet. Trans.,' vol. xvii, p. 118.

† Cf. *inter alia* Doyen's experiments, summarised in 'Brit. Med. Journ.,' 1888, i, p. 931.

appeared, unless we assign the tympanites and tenderness to such cause. With this limitation, her symptoms corresponded to those of an attack of facial erysipelas.

In seeking for a possible explanation for the immunity from general sepsis, I am much tempted to adopt, as at least a useful working hypothesis, a suggestion made by Dr. Playfair* in regard to the relation of zymotic diseases to puerperal fever.

It is well known how various is the experience of accoucheurs in regard to exanthemata during the post-partum state. On the one hand, we find Spiegelberg† declaring that "the puerperal virus has no particular connection with the poison of the acute exanthemata;" and again "that the acute exanthemata may break out in lying-in women, and even in those attacked by septic diseases; but when they do so, the zymotic diseases and the puerperium or the puerperal sepsis, in the main, advance quietly side by side, although no doubt their characters may be more or less modified."

On the other hand, Dr. Braxton Hicks‡ holds that a puerperal woman, when affected with scarlet fever, develops puerperal fever; and another obstetrician, Dr. Tyler Smith, declared from the chair of the Obstetrical Society§ that "any of the agents which produced zymotic maladies might cause puerperal fever."

A different view, again, is held by Dr. West,‖ namely, that the acute exanthemata sometimes breed true in the lying-in woman—that is, variola produces variola; at other times they give rise to disease indistinguishable from puerperal fever.

Dr. Playfair, in discussing these cases, writes: "It seems to me not improbable that the explanation of the fact that zymotic poison may in one puerperal patient

* 'Science and Practice of Midwifery,' 1889, ii, p. 346.
† New Sydenham Society's translation, ii, p. 429.
‡ 'Obstetrical Transactions,' vol. xii, p. 44.
§ Ibid., vol. iii, p. 403.
‖ Ibid., vol. xvii, p. 237.

run its ordinary course, and in another produce symptoms of intense septicæmia, may be found in the channel of absorption. It is at any rate comprehensible that if the contagion be absorbed through the skin or ordinary channel, it may produce its characteristic symptoms and run its usual course ; while, if brought into contact with lesions of continuity in the generative tract, it may act more in the way of septic poison, or with such intensity that its specific characters are not developed."

Without for a moment wishing to minimise the great difficulties that lie in the way of our accepting this view (and a discussion of them would involve such moot questions as the local or constitutional nature of erysipelas, and the meaning of "specificity" as applied to zymotic disease), yet I may point out that the treatment of the above case was based upon it, and apparently with success. By preventing the access of contagion to the generative organs by antiseptic pads rapidly changed, and by disinfecting the air of the room, efforts were made to keep the generative tract, so readily inoculated in the post-partum state, free from the virus of erysipelas.

Fourthly. It is very unusual for an interval of nineteen days to elapse between delivery and the outbreak of eclamptic convulsions.

Fifthly. Recovery after so large a number of eclamptic attacks as twenty-six is rare, but by no means unrecorded.

Sixthly. The total absence of albuminuria or other renal symptoms is also noteworthy. The urine passed in the interval between two rapidly successive paroxysms was more than once tested, and always with a like result.

Dr. Braxton Hicks wished to point that the author had fallen into a mistake which many others had made, both here and in America, namely, that in the paper he had brought before the Society many years ago, showing the clinical surroundings of a number of cases of puerperal diseases, he had stated that puerperal fever was caused by scarlatina. If this paper were carefully read, together with his remarks in the discussion of puerperal

fever in relation to infective diseases and pyæmia, it would be seen that he had not made that assertion. He had endeavoured to do what but few, such as Dr. Boxall and the author of this paper, had done, namely, to bring facts before the Society. He had endeavoured to correct this misapprehension of what he had said by publishing an explanation in the 'American Journal of Obstetrics,' May, 1886. That there is an intimate connection between zymotics, erysipelas, &c., and puerperal fever, so called, there could be no doubt, but the exact nature of the relationship yet had to be made out. For himself, it seemed most likely, according to our present knowledge, that in the bad cases, similar to those seen in hospitals formerly, there were two poisons acting concurrently, and this probability was pointed at by our president in his address. However, Dr. Hicks concluded by saying that the solution of the question could only be found by continually collecting clinical histories from all parts of the world, particularly in new towns not yet saturated with zymotic diseases.

Dr. HERMAN said that Dr. Hurry took it as established that erysipelas was one of the causes of puerperal fever. This view was based upon the experience of certain lying-in hospitals in Dublin, Paris, and London, in which the presence of a case in the hospital or its neighbourhood had preceded the outbreak of puerperal fever. In King's College Hospital, the presence of erysipelas in the surgical wards had been found to go along with fever in the lying-in ward. But he (Dr. Herman) did not think this by itself showed more than that the two diseases flourished and spread under identical conditions. The opinion had also been supported by Dr. Minor's book, in which he compared the prevalence of erysipelas and puerperal fever in different States of America, and proved to his own satisfaction that the two diseases prevailed together. But he (Dr. Herman) did not think that the evidence adduced by Dr. Minor bore out his conclusion. The so-called "epidemics" of puerperal fever were only very slight elevations of the number of cases above the general average, and the number of times that an increased death-rate from erysipelas went with an increased death-rate from puerperal fever was not more than could be accounted for by fortuitous coincidence, together with the fact that the spread of both diseases was favoured by uncleanliness and bad ventilation. Thus both diseases were found especially frequent among German immigrants. The question had been obscured by the inclusion of two different diseases under the term erysipelas. Cutaneous erysipelas, which Fehleisen had shown to depend upon a specific coccus, which could be cultivated and inoculated, reproducing the disease, was quite a different thing from phlegmonous erysipelas. Phlegmonous erysipelas he (Dr. Herman) had no doubt was one of the diseases included under the term

puerperal fever. The poison of this disease produced as terrible consequences when inoculated into a rent in the perinæum as it did when it got into a wound in a limb. This was the disease which Virchow had called *erysipelas malignum internum*. But cutaneous erysipelas, when communicated to a lying-in woman, produced only the same disease as it did in any other patient. Gusserow had published a series of cases which showed this. He (Dr. Herman) had seen cutaneous erysipelas in the lying-in woman, and also in the infant, and it ran just the same course as in a patient who had not been delivered, and did not produce puerperal fever. He agreed with Dr. Braxton Hicks that cases in which patients appeared to suffer from erysipelas and from septicæmia were cases of mixed infections, in which the poison of both diseases had been received by the patient.

Dr. Heywood Smith wished to know if any observations had been taken of the frequency or character of the pulse between the fits.

Dr. Boxall said that the subject so ably presented to the Society by Dr. Hurry was to him of peculiar personal interest. Indeed, it will be found to occupy a prominent place in the next part of his paper on "Fever in Childbed." On that account he would not at present detail the evidence which he hoped at no distant date to lay before the Society. At the same time, he wished to take the present opportunity of making a few remarks of a general character on some points in the paper. And, at the outset, he would draw a distinction between facial, and—as it might be termed—pelvic, erysipelas. For, though convinced that both were due to the same cause, he nevertheless recognised that the difference in the primary site of the local inflammation entailed great divergence in the clinical aspect and gravity of such cases. Facial erysipelas, such as the author had described, judging from the literature of the subject, was as common before as after labour; even more so. But after delivery pelvic erysipelas held the first place. In speaking of the latter he would have occasion to draw attention to Winckel's work, 'Über das puerperale Erysipel,' which formed most instructive reading and brought this point into prominence. For the present, however, he wished to limit his remarks almost conclusively to erysipelas primarily attacking the face. That such a febrile illness as erysipelas—facial erysipelas—was competent to induce premature labour was well known, and many such occurrences were on record. Dr. Boxall would ask the author if, for purposes of future reference, he could give the duration of the pregnancy in days, dating from the end of the last menstrual period. From a study of the literature of the subject (which, however, he had not yet exhausted) Dr. Boxall was disposed to agree that the bilateral and simultaneous appearance of the erysipelatous process was probably unique, though to him it seemed a possibility which might at any

time occur. By way of analogy he might instance the rare occurrence of whitlow on both hands simultaneously. To his mind whitlow and facial erysipelas presented so many points in common, that contemplation of the behaviour of the former might serve to render plain the after-course of the latter. To begin with, the chance of finding a local breach of surface was about on a par in both cases. In both, the affection, though attended with a certain amount of constitutional disturbance, was primarily local, but it might ultimately become general, or lead to the establishment of other inflammatory foci, such as sometimes occurred in the pelvis. Further, this local pelvic inflammation might ensue in one of two ways. In the case of whitlow, septic poison, and in that of facial erysipelas, erysipelatous poison, might, on the one hand, spread from its original habitat through the tissues of the body and, lighting upon already damaged pelvic tissues, produce an acute form of inflammation; or, on the other hand, from the same local foci, either poison might be given off, and, after escaping entirely from the body, re-enter it through the genital tract, become absorbed, and set up inflammation in the pelvis. To the remarks of the author under the third heading, Dr. Boxall wished to direct particular attention. In the first place, he (Dr. Boxall) was willing to regard the case in point as being in all probability one of facial erysipelas *per se*. For it was his opinion that had the pelvic organs become involved in the erysipelatous process, and had pelvic erysipelas resulted, the physical signs (such as the tympanites and tenderness) would probably have been more pronounced, and the case would altogether have assumed a graver aspect. In the second place—and in this he must necessarily trench somewhat on the evidence to be brought forward in the second part of his paper—he was convinced that the erysipelatous poison itself, when it implicated the pelvic organs, produced a local and general disturbance, which, as far as clinical observation was concerned, was very often indistinguishable from puerperal fever as generally understood, and invariably resulted in a puerperal disease of grave and often fatal type. It appeared well established that no blush appeared beyond the vulva in many such cases, and consequently their erysipelatous character was apt to pass observation. On the other hand, he might add that he was far from believing that all puerperal fever, or even all puerperal fever of the graver kind, was erysipelatous, because other poisons, which were septic but not erysipelatous, were capable of producing a similar—he might almost say identical—clinical result. Now, granting that erysipelatous poison might itself produce a form of puerperal fever (in reality an attack of erysipelas indistinguishable in clinical aspect from septicæmia with pelvic inflammation), we certainly should have expected, as Dr. Hurry said, that a lying-in woman suffering from erysipelas of the face would run the greatest risks of puer-

peral sepsis. Many such cases, however, were reported in which the erysipelatous poison failed to reach the pelvis either by extending through the body-tissues or by direct reintroduction through the genital passages, especially where such measures as those referred, in the paper were adopted. Finally, with regard to the working hypothesis mentioned by the author, Dr. Boxall, while agreeing that it held good in the case of erysipelas trusted that we should soon hear the last of it as applied to the zymotic diseases generally. For he ventured to say that, if, as had been done by himself in the case of scarlatina, a separate series of cases of each of the zymotic diseases had been collected in which the source of infection could be arrived at with some approach to certainty, it would be found that many of the very worst cases, and cases of a marked character were those in which direct inoculation could be completely eliminated. This was chiefly due to the fact that in many such cases the patient had obviously received infection prior to the onset of labour, and then in all probability through the ordinary channels. And seeing that there still remained similar anomalies which could not be explained, even when these diseases occurred apart from puerpery, anomalies to which obviously no theory of direct inoculation through the genital tract could possibly be applied, Dr. Boxall would prefer to await patiently a rational explanation, to seeking solace in so groundless a theory. The confusion which had in no small measure arisen through arguing from one disease to the other —through concluding that because erysipelas did this, scarlatina must do likewise and measles follow in the same train—would only be obviated by keeping the behaviour of each disease separately before the mind. And, at least as regarded erysipelas and scarlatina, he was convinced that a very wide difference existed in their tendency to implicate the pelvic organs when the disease attacked a recently delivered woman.

Dr. Amand Routh thought that as there was distinct evidence of otitis, the convulsions were due to a transient meningitis, secondary to the erysipelas, and were not, in any etiological sense, puerperal.

Dr. Cleveland disagreed as to the analogy between cutaneous facial erysipelas and whitlow. From what he had seen of both affections, there was no tendency to suppuration in the former, while in the latter it was marked. He had always regarded the importation of pus into puerperal surroundings as an element of danger, and could understand the necessity for taking precautions if a lying-in woman happened to be suffering from whitlow.

Dr. Hurry, in reply, thanked the Society for the kindly reception accorded to his paper, which was a small contribution towards the settlement of some difficult problems in obstetrics. To Dr. Braxton Hicks an apology was due that his views had,

been misstated on the subject of the relationship between zymotic disease and puerperal fever. Unhappily no observations were made in respect to the pulse-rate during the interval between the convulsive attacks. Dr. Boxall had inquired the exact period of pregnancy at which labour came on. Calculated from the cessation of the last menstrual period, the duration of pregnancy was 266 days. Dr. Amand Routh had suggested that the convulsive paroxysms might possibly be due to meningitis, the discharge from the ear pointing to such a cause. Dr. Hurry, however, considered that the character of the attacks, as well as the subsequent history of the patient, left but little doubt that the case was one of true eclampsia, and that the discharge from the ear was due to the facial erysipelas.

FOUR CASES OF PREGNANCY WITH BRIGHT'S DISEASE.

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(*Abstract.*)

The author points out that to understand the relation between renal disease in pregnant women and eclampsia of pregnancy, it is necessary to compare cases of renal disease with eclampsia with cases of renal disease without eclampsia. Four cases of the latter kind are detailed in this paper, of which the chief features are as follows:

Case 1.—Second pregnancy. Morning sickness ceasing about middle of third month: vomiting returning in seventh month, together with œdema, giddiness, amblyopia, and disturbed sleep: slight anæmia: no marked cardiac hypertrophy: urine solid with albumen: quantity of urine increased: excretion of urea slightly below the average: induction of labour near end of seventh month: child living: rapid diminution of albuminuria and increase of urea-excretion following delivery: recovery: subsequent pregnancy without similar renal changes.

Case 2.—Sixth pregnancy. Twins: hydramnios: œdema in last four months of pregnancy: no other symptoms: urine solid with albumen, about half paraglobulin: slightly diminished quantity of urine and urea: labour accelerated by separation of membranes around os uteri: children living: delivery immediately followed by great diminution in albuminuria, great diuresis, and augmented urea-elimination: temporary return of albuminuria during latter part of lying-in period: apparently complete recovery.

Case 3.—Sixteenth pregnancy. Fits after confinement six

years previously: symptoms coming on at beginning of eighth month of present pregnancy: intra-uterine death of fœtus: premature labour induced at end of eighth month, after one week's treatment by rest and milk diet: no diminution in quantity of urine, but diminished urea-elimination: albuminuria: diminution of albuminuria and partial restoration of urea-excretion before delivery, continuing after delivery: recovery, but persistence of renal disease.

Case 4.—Albuminuria: uræmic twitchings: cerebral hæmorrhage: induction of labour at beginning of eighth month: child living: diminished percentage of urea before delivery: after delivery rapid increase in percentage of urea, and temporary diminution of albuminuria: renewed cerebral hæmorrhage: coma: death: no autopsy.

The author comments on the special features of each case: the diminished albuminuria and increased urea-excretion which followed delivery in all; these effects of delivery being greatest in Case 2, in which the abdominal distention was greatest, and least in Case 3, in which the abdominal enlargement was least; Case 3 being also contrasted with others as to the amount of albumen, and the duration and persistence of the disease.

I have in former communications put before the Society cases of eclampsia in which the condition of the renal function was noted with especial care. But in order to understand what part alterations in renal function play in the production of eclampsia, we must compare such cases with others in which there is renal disease without eclampsia. In this paper I submit some cases of this kind.

Case 1. *Second pregnancy; morning sickness ceasing about middle of third month; vomiting returning in seventh month, together with œdema, giddiness, amblyopia, and disturbed sleep; slight anæmia; no marked cardiac hypertrophy; urine solid with albumen; quantity of urine increased; excretion of urea slightly below the average; induction of labour near end of seventh month; child living; rapid diminution of albuminuria and increase of*

urea-excretion following delivery; recovery; subsequent pregnancy without similar renal changes (from notes by G. A. Pratt, House Physician).

F. P—, single, pregnant with second child, admitted into the General Lying-in Hospital, April 5th, 1888.

Previous history.—No scarlet fever or any other illness. First child born February 2nd, 1885; pregnancy normal. Can give no account of confinement, as she was delivered under anæsthetic. Child had spina bifida and club feet. Began to menstruate at thirteen, but catamenia did not reappear for some months, after which they were regular, moderate in quantity, lasting three days. No pain. Last menstruated during second week in August, 1887, quantity as usual. Thinks she became pregnant the day after cessation of flow. About a fortnight after last menstruation, nausea and retching came on immediately on rising in the morning, which continued till she vomited. This ceased after lasting two months, but returned in March, 1888, about three weeks before admission, vomiting occurring on five or six mornings, and on two occasions during the night. Since Christmas, patient has had to get out of bed three or four times during the night to pass water, passing only small quantities, with some pain, at each act. Her legs have been swelling, especially at night, for two months, but only slightly until the first week in March, 1888, when patient had to leave her work one day, owing to the swelling of her legs and giddiness. The vulva also swelled, and her face has been swollen during last week. There has been occasional dimness of sight during the last week. Patient has had a yellow vaginal discharge during the whole of pregnancy, but during the last two months it has been so free that a diaper had to be used continually. No headache, but a sharp, almost continuous, pain in each temporal region. For some weeks past has not slept well.

On admission (April 5th).—Patient was pale and pasty looking. No marked anæmia. There was œdema of both lower extremities, extending as high as the groins

on either side. No œdema of abdominal walls. Greatest abdominal girth 30½ inches. Fundus uteri 2½ inches above umbilicus. There was marked uterine obliquity to the right, which altered with the position of patient, being towards the left when patient had been lying on her left side. Fœtal heart audible. Cardiac dulness not increased. Apex-beat to inner side of left nipple. Reduplication of first sound at apex, second sound loud and sharp at base. No abnormal signs in lungs.

On vaginal examination the portio vaginalis was found to be ¾ in. long. The os externum admitted the tip of the finger, but os internum was closed. Vertex presenting, freely moveable. Promontory of sacrum not felt. External conjugate 7 in.

Ophthalmological examination showed no morbid changes. Patient to be kept in bed, on milk diet, and allowed plenty of distilled water to drink. Pulv. Jalapæ Co., gr. xxx given. Urine to be drawn off by catheter before each stool.

April 7th.—There being no change in condition of patient, the usual antiseptic precautions having been taken, a No. 10 gum-elastic bougie was introduced between the uterus and fœtal membranes at 10.30 p.m. At 11.15 p.m. a small quantity of liquor amnii began to escape.

8th, 5 p.m.—Pains regular every ten minutes. Presentation second cranial.

9th, 2.15 a.m.—Os fully dilated. 2.30 a.m. Child born. Very little hæmorrhage, in all about 3 oz.

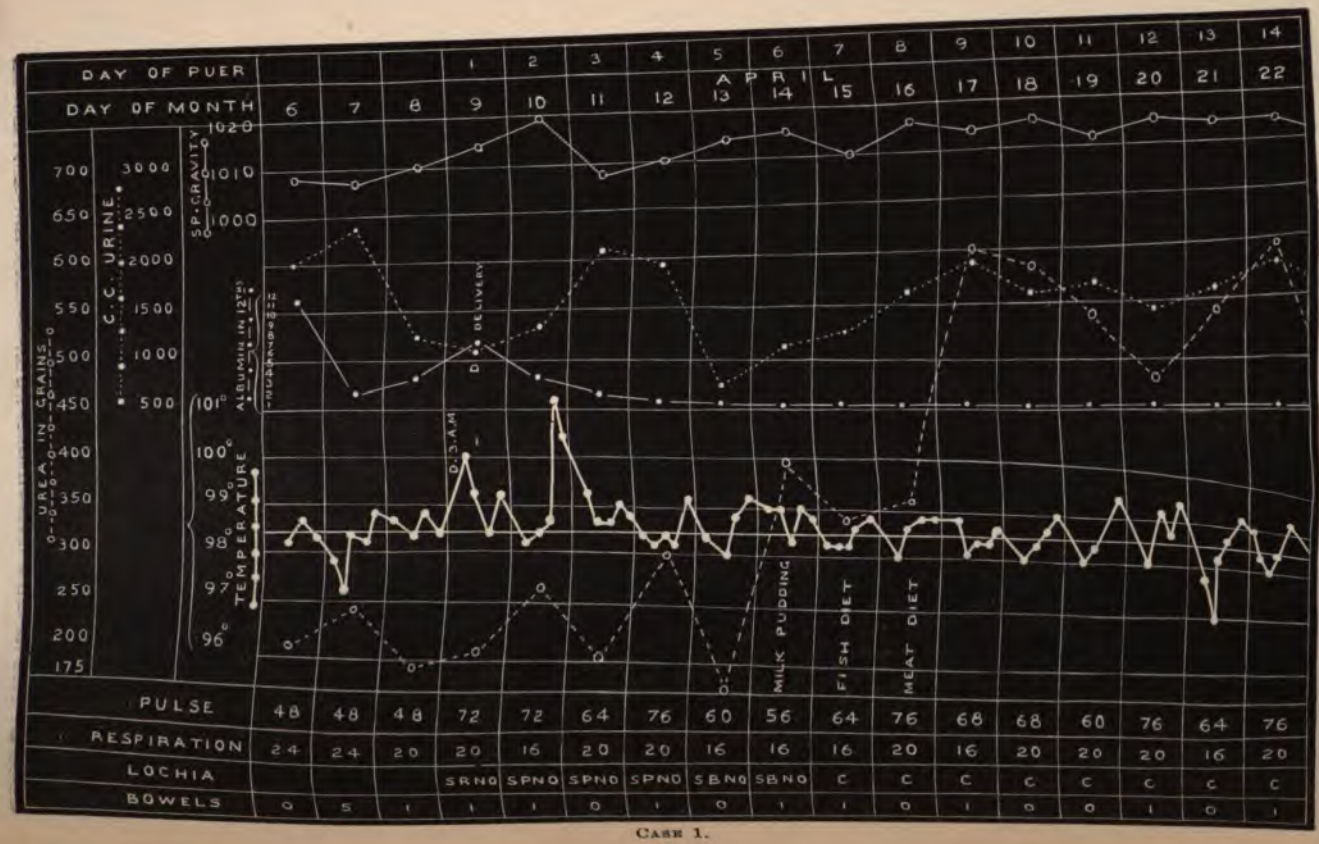
Child, male, 17 inches long, weighed 3 lb. 8 oz. Placenta weighed 13 oz.

The lying-in period was satisfactory. The œdema passed off rapidly after delivery. On the third day it was very slight.

During first week patient frequently complained of pain in temporal regions, and also in region of sternum.

On the eighth day patient had fish diet, and on the ninth meat. She was now allowed to sit up.

Patient had a fair quantity of milk, which was drawn


DAY OF PUER
DAY OF MONTH
APRIL
UREA IN GRAINS
C.C. URINE
SP. GRAVITY
ALBUMIN IN 12THS
TEMPERATURE
D. DELIVERY
D. 3 A.M.
MILK PUDDING
FISH DIET
MEAT DIET
PULSE
RESPIRATION
LOCHIA
BOWELS

CASE 1.

off by breast-pump and child fed with it, it being too weak to suck. The child was placed in the incubator, and took its food well.

Temperature.—Up to the time of delivery the temperature was normal or subnormal. Three hours after delivery it reached 100°, but soon fell again to normal; on the evening of the second day it reached 101·2°, which was probably caused by some slight breast trouble, as it soon fell to normal. During the whole of patient's stay in the hospital the temperature was taken every four hours, but it remained normal until her discharge.

Urine.—During the whole of patient's stay in the hospital the urine was measured every twelve hours and examined.

At first all urine was drawn off by catheter, but this was discontinued two days after delivery. After this the urine was passed by the patient and saved by the nurse; but the catheter was used immediately before the bowels were going to act, so that very little urine was lost.

Quantity.—Up to the time of delivery the average quantity of urine passed per diem was 61 oz., but the daily variations were great. Before delivery, the largest quantity passed in twenty-four hours was 84 oz. and the minimum was in the twenty-four hours just before delivery, when only 44 oz. were passed. In the twenty-four hours following delivery the quantity rose to 72 oz. On the second day after delivery, the quantity was 67 oz. in twenty-four hours, but on the fourth day it fell to 26 oz. On the sixteenth day after delivery the patient passed a large quantity of limpid urine, 113 oz. in twenty-four hours, this being probably due to emotional causes; and on the seventeenth day 65 oz.

Specific gravity.—On admission it was 1008; the day before delivery it rose to 1015, and immediately after delivery it rose to 1020, which was the highest reached. After this it varied from 1008 to 1018; but on the seventeenth day, when the large quantity of urine was passed, the sp. gr. fell to 1004.

Albumen.—On admission the first urine examined turned solid on boiling. Next day it was one-fifth, and the day before delivery a half. After delivery the quantity of albumen at once fell to one quarter, and continued steadily diminishing, so that on the sixth day after delivery there was only a trace. A very faint cloud was still seen when patient was discharged. The albumen did not increase when the patient began to take ordinary diet, nor when she got up.

Casts.—Urine contained a few hyaline and granular casts, but they were never numerous. They were slightly more numerous immediately after delivery than before.

Urea.—The urea was estimated twice daily during the whole stay in the hospital by Squibb's apparatus. On admission, the urine only contained 0·7 per cent. and remained so during the first day, the patient passing 244 grains of urea in twenty-four hours. In the twenty-four hours preceding delivery she passed 190 grains of urea. Immediately after delivery the quantity rose to 262 grains in twenty-four hours; on the eighth day to 606 grains. After this it varied between 420 and 550 grains in the twenty-four hours. On the day in which the large quantity of urine was passed the percentage of urea for twenty-four hours fell to ·81, but rose again the following day.

On April 26th, 1888, the patient was sent to the convalescent home.

Her urine was examined on May 29th, 1888, and still contained a faint cloud of albumen, and 1·22 per cent. of urea; she passes about three pints in the twenty-four hours.

December 16th, 1889.—Confined November 24th, 1889—she thinks at about three weeks before her time. Last menstruation ceased Dec. 10th, 1888.

During pregnancy frequently came over with a "silly feeling," not headache, but a peculiar feeling in the head. Much more vomiting than in the former pregnancies. Went to St. Olave's (Southwark) Workhouse about November 8th. Urine was tested by Dr. F. P. Wightwick soon after admission, and a trace of albumen found. Labour

lasted about six hours. The liquor amnii was discharged twenty-four hours before pains began. No anasarca nor ascites while in the workhouse. Urine always contained a trace of albumen. No convulsions.

Patient is thin: not markedly anæmic. No œdema. Heart's apex-beat below nipple. No murmur. Feels well except that she thinks she is weak. Urine sp. gr. 1020, acid, trace of albumen; a few granular casts.

Labour was induced in this case for the sake both of the mother and the child. For the sake of the mother, because to allow the pregnancy to go on would have been to expose her to increased risk of eclampsia, and increased probability of renal disease persisting after delivery: while experience has abundantly shown that in renal disease coexisting with pregnancy rapid improvement usually follows delivery. For the sake of the child, because much evidence has been brought forward by Fehling,* Wiedow,† Cohn,† and others, to show that in Bright's disease with pregnancy, intra-uterine death of the fœtus is frequent: and cases which I have published show the same thing.

In this case the excretion of urea before delivery was a little more than half the average of health. This was probably largely an effect of restricted diet, for the daily quantity was only slightly increased by delivery, but rose to the full average of health when the patient was put on meat diet.

Some diminution in the albuminuria followed rest and milk diet, but the quantity was increased again before delivery. After delivery, as is almost invariably the case, there was a rapid diminution in the amount of albumen.

Although a trace of albumen in the urine remained, a further pregnancy was not attended with a recurrence of similar kidney change.

Case 2. *Sixth pregnancy; twins; hydramnios; œdema in last four months of pregnancy; no other symptoms;*

* 'Arch. für Gyn.,' Band xxvii.

† 'Zeits. für Geb. und Gyn.,' Band xiv.

urine solid with albumen, about half paraglobulin; slightly diminished quantity of urine and urea; labour accelerated by separation of membranes round os; children living; delivery immediately followed by great diminution in albuminuria, great diuresis, and augmented urea-elimination; temporary return of albuminuria during latter part of lying-in period; apparently complete recovery.—E. A—, aged 36, admitted into the London Hospital under the care of Dr. F. Charlewood Turner, May 17th, 1888. (I have to thank Dr. Turner for calling my attention to this case, and for permitting me to publish it; and Mr. G. C. Wright, Resident Accoucheur, for the notes and for the measurement and examination of the urine.)

Patient said she had been married ten years, and had had five children, all living, and one miscarriage. She worked as a tailoress. Has had no previous illness. Believes herself near the full term of pregnancy. Four months ago began to suffer with cramp in the legs, and then the legs began to swell, and the swelling has since continued and increased. Has had no pain. No vomiting. Appetite moderate, bowels confined. Has slept well. No headache. No defect of sight.

On admission.—Patient was well nourished, but anæmic. Legs and lower abdomen were œdematous. Cardiac dulness increased, but no murmur; pulse 75. Nothing abnormal on ophthalmoscopic examination. Abdomen greatly distended and fluctuating. The urine, when albumen was precipitated, became nearly solid.

Dr. Herman saw the patient on May 22nd. The os uteri was then the size of half-a-crown, and the head could be felt presenting. The patient did not complain of pain.

May 23rd.—Still no pain. Os uteri same size. Fœtal heart heard, over 150 per minute.

26th.—Condition the same. The following measurements were made:—Circumference at umbilicus, 47 inches; ensiform cartilage to umbilicus, 12¾ inches; pubes to umbilicus, 9½ inches. At about 2 p.m. the membranes

were separated by the finger as far round the os uteri as the finger could reach—that is, about 1½ inches. 8.30 p.m., patient delivered of twins, living, both males. Much hæmorrhage. Much liquor amnii. After delivery the œdema rapidly subsided.

30th.—An attack of diarrhœa.

June 6th.—Patient yesterday and to-day complaining of headache and loss of appetite.

8th.—Urine again contains as much albumen as on admission; no casts. Headache gone. Appetite bad. Liver dulness to fifth rib above, to costal margin below. Splenic dulness not larger than four fingers' breadths.

10th.—The urine contains a good deal of pus, although the catheter has been but seldom used.

14th.—Patient gaining strength rapidly. Is now allowed up for six hours daily. No pain. No œdema. Takes food well and sleeps well. Children healthy and strong.

22nd.—Patient allowed up all day, and to go into garden.

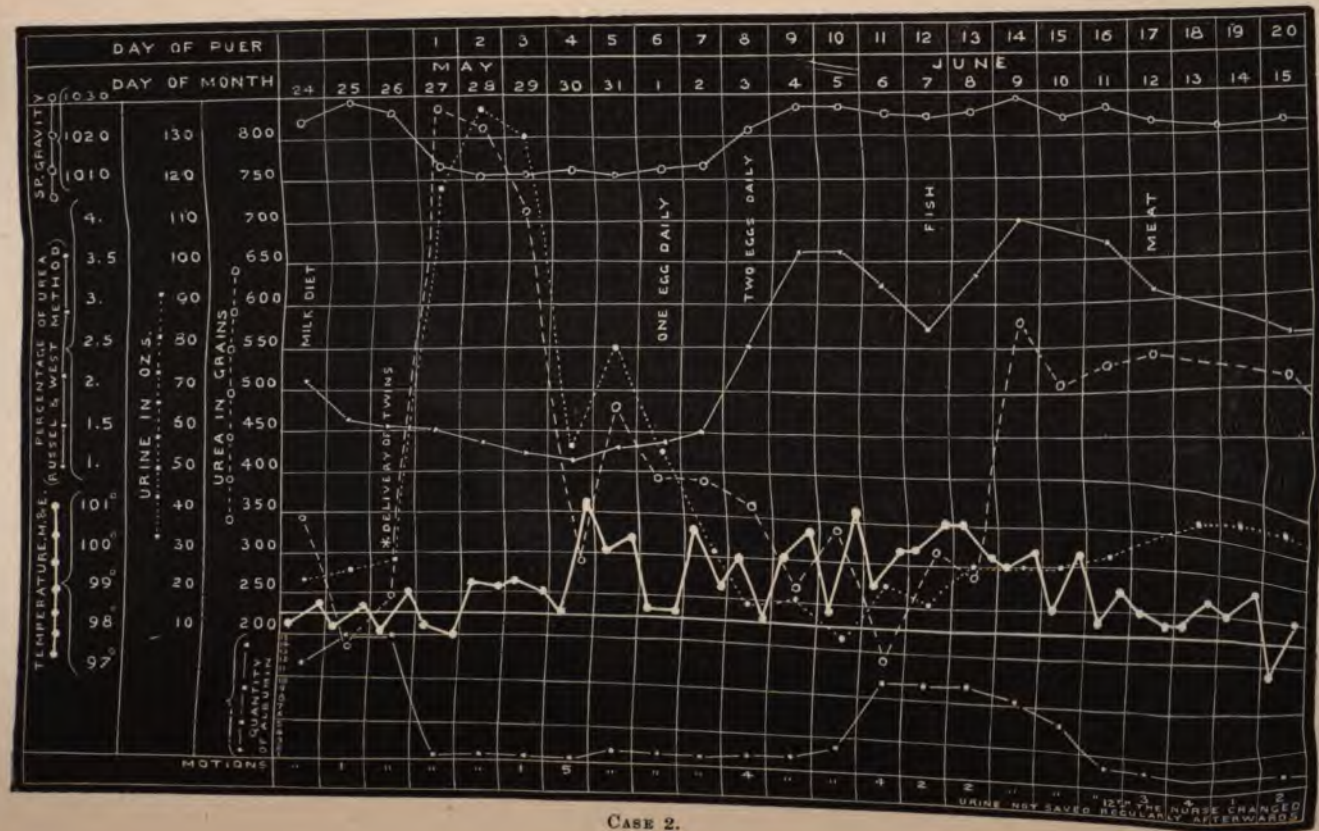
28th.—Discharged.

The alterations in the patient's diet are shown in the chart.

I have endeavoured to trace the subsequent history of this patient, but have failed to do so.

Temperature.—This was normal on admission, and continued so until the fourth day of the lying-in, when it rose to 101·2°. It fluctuated between this level and the normal during the next eleven days, but no cause was discovered for this excepting an attack of diarrhœa which accompanied the first rise of temperature. During the last five days of this period there was a return of the albuminuria, as will be subsequently described. After this date the temperature did not exceed 99·6°.

Urine.—Instructions were given that all the urine passed by the patient should be saved. As far as possible this was done, though some was of course lost when the bowels acted. The patient was allowed to pass it herself as a rule, but at intervals some was withdrawn by


DAY OF PUER
DAY OF MONTH
MAY
JUNE
SP. GRAVITY
PERCENTAGE OF UREA (RUSSEL & WEST METHOD)
URINE IN OZS.
UREA IN GRAINS
TEMPERATURE M. & E.
QUANTITY OF ALBUMIN
MOTIONS
MILK DIET
DELIVERY OF TWINS
ONE EGG DAILY
TWO EGGS DAILY
FISH
MEAT
URINE NOT SAVED REGULARLY AFTERWARDS

Case 2.

the catheter to make sure that the characters of the urine were not materially altered by admixture with lochia. The number of motions is shown on the chart, so that the amount of error from this cause can be roughly estimated.

Quantity.—Until delivery the quantity of urine was below the average, but under the influence of rest and milk-diet was increasing slightly; 22 oz., 24 oz., and 28 oz. are the amounts for the three consecutive days, on the last of which the patient was delivered. Delivery was followed by great diuresis, 118 oz. of urine being passed in the twenty-four hours following delivery. During the next two days the quantity of urine was still more above the average, 136 oz. and 130 oz. being collected. Then comes apparently a sudden drop to 56 oz.; but as on this day the bowels acted five times, it is probable that had it been possible to collect all the urine, the diminution would not have been so great. I think there would have been a diminution, for on the next day, the fifth of the lying-in, all the urine was collected, and amounted to 80 oz. After this the quantities of urine collected each day do not depart widely from the normal. They are on the whole rather below it, but this is on some days accounted for by loss accompanying the action of the bowels.

Specific gravity.—The specific gravity varied as a rule inversely with the quantity of urine. Before delivery it was 1024, 1031, 1026, and with the great diuresis which followed delivery it fell to 1012 and 1011. Further comment will be made in connection with the urea percentage.

Albumen.—On admission the urine contained four-fifths of its bulk of albumen, and during the two days preceding delivery became solid when the albumen was precipitated. On the day following delivery the albumen dropped to a mere trace. On the tenth day after delivery the quantity of albumen increased, and on the eleventh day the urine again contained four-fifths of its bulk of albumen. This continued for four days, and then the quantity of albumen again began to diminish, and by the twentieth day after

delivery there was again only a trace of albumen present. There was no accompanying change in the patient's condition or circumstances which appeared sufficient to explain this temporary increase of albuminuria.

On May 26th, when precipitation of the albumen rendered the urine nearly solid, the paraglobulin was precipitated with sulphate of magnesia. After subsidence it occupied about three-eighths of the test-tube. After separation by filtration of the paraglobulin the serum albumen precipitated amounted to about half the bulk of urine. May 29th (fourth day after delivery), about half the albuminous precipitate was found to be paraglobulin. June 11th (the first day of the temporary increase of albuminuria above mentioned), about two-thirds of the albuminous precipitate was found to consist of paraglobulin.

Urea.—The amount of urea was estimated by the Russell and West hypobromate process. In order to attain the most accurate results possible, the same specimen was sometimes tested both by the Russell and West process and by the Liebig process. The results of this comparison may be interesting.

Date.	Russell-West.	Liebig.	
June 3	396	399·5	
„ 4	360	342·9	
„ 8	312	296	
„ 10	576	548.	This estimate was not made till two days after examination by the Russell-West process, and the urine had begun to decompose.

The curve indicating the percentage of urea follows, in the direction of its variations, that of the specific gravity. But before delivery, the urea-percentage was below what would have been expected from the specific gravity of the urine, while after delivery it was higher. On admission the percentage of urea closely corresponded to the specific gravity, the latter being 1024, the former 2·2. On the following day, though the specific gravity had risen to

1029, the urea-percentage was only 1·6. On the day of delivery, with a specific gravity of 1026, the urea-percentage had further declined to 1·5. Then comes delivery, and with it a rise in the percentage of urea. The 118 oz. of urine passed in the day following delivery, showed 1012 specific gravity and 1·45 per cent. of urea. During the next three days, the percentage more closely approached the specific gravity, as the following figures show :—

	Sp. gr.	Urea-percentage.
2nd day ...	1011 ...	1·3
3rd „ ...	1011 ...	1·2
4th „ ...	1012 ...	1·1

Then it begins to rise again :—

	Sp. gr.	Urea-percentage.
5th day ...	1011 ...	1·3
6th „ ...	1012 ...	1·35
7th „ ...	1013 ...	1·5
8th „ ...	1021 ...	2·5
9th „ ...	1027 ...	3·6

The rise in the specific gravity and in the percentage of urea followed the addition of eggs to the milk diet. The temporary return of the albuminuria, which has been related, was accompanied by still more transient depression of the specific gravity and urea-percentage. On the second day that the urine was again loaded with albumen the specific gravity was 1024, the percentage of urea 2·7. The specific gravity and urea-percentage had risen to their former standard before the albuminuria had notably diminished.

The total quantity of urea was on the day of admission little below the average of health. On the two following days it sank to 180 and 245 grains respectively. After delivery it suddenly ran up to over 800 grains. After this the quantity gradually declined till it approached the average of health. The temporary increase in albuminuria was preceded accompanied with slight depression of

the daily quantity of urea. After this had subsided, the daily urea excretion again ran up to over 500 grains. About the end of the second week of lying-in cystitis came on, and the urine soon became ammoniacal. The diminution in the amount of urea which the chart shows at the end of the third week of lying-in is partly accounted for by decomposition.

Deposit.—On admission the clinical clerk found some hyaline and granular casts in the urine. How many is not recorded. On subsequent examinations very few or no casts were found. Dr. Turner examined carefully the urine passed on May 26th, but only succeeded in finding one hyaline cast. On June 6th two casts were seen: none between these dates, although sought for. None were found again till June 27th, when two hyaline casts were present on the slide.

The urine did not at any time contain sugar.

This case seems to me of much interest from the marked effect which followed the lessening of the intra-abdominal pressure produced by the expulsion of the abnormally great uterine contents. During the three days which followed delivery, the quantity of urine, as compared with the three days immediately preceding delivery, was quintupled, and the excretion of urea tripled. After this the quantity of urine and urea gradually fell to the average of health. Diuresis after delivery has been described as a feature of normal lying-in, but not to this extent. It seems as if the abnormal pressure had hindered the kidneys in their work, and that after the removal of this pressure the kidneys, so to speak, first exerted themselves to clear off arrears, and then returned to their ordinary functional activity.

The same sudden diminution in albuminuria as has been observed in many other cases, was observed here. The albumen was largely paraglobulin, a fact which supports the views of Ralfe and of Maguire that it is this form of albumen which is abundant when albuminuria is due to increased pressure.

I may also call attention incidentally to a minor point, viz., the effect of separating the membranes in stimulating uterine action.

CASE 3.—*Sixteenth pregnancy; fits after confinement six years previously; symptoms at beginning of eighth month of pregnancy; intra-uterine death of fœtus; premature labour induced at end of eighth month, after one week's treatment by rest and milk diet; no diminution in quantity of urine, but diminished urea-elimination; albuminuria; diminution of albuminuria and partial restoration of urea-excretion before delivery, and continuing after delivery; recovery, but persistence of renal disease* (reported by Dr. H. G. Lys, Resident Accoucheur, and Mr. F. S. Harris, Clinical Clerk).

A. G—, aged 36, admitted March 11th, 1889.

Patient is a Polish Jewess. She came to hospital on account of swelling of face and legs. Said she had had no illness except in connection with pregnancies. Came to England at the age of twenty-two, and had since then lived in the East-end of London and worked as a tailoress. Had occasionally been so badly off as not to get enough to eat; usually worked twelve hours a day.

First menstruated at sixteen. Catamenia regular, except during pregnancy, and generally without pain. Was married at twenty-two, and has had fifteen pregnancies. Five ended in delivery of living children at or near term, and ten in miscarriages at about three months. Six years ago, after a confinement, she was very ill with "fits." Now thinks herself eight months pregnant. Until three weeks ago felt the child's movements. Three weeks ago her face and legs began to swell, the eyelids first. For the same time she has suffered from severe and constant headache, has slept badly, and had a cough. Has only vomited once. Has passed much urine.

On admission the urine was clear, free from deposit, sp. gr. 1018, and containing one-fifth albumen. Patient was put on milk diet.

March 15th.—The following note was made:—Patient is somewhat anæmic; face puffy. Cardiac dulness reaches on the right to the middle line, on the left to a finger's breadth beyond the nipple; no murmur. Slight œdema of feet. Arteries very hard. Fundus uteri reaches not quite halfway between umbilicus and ensiform cartilage. Cervical canal not admitting finger. Cervix has been deeply lacerated to left.

17th.—A flexible bougie was introduced into the uterus for its whole length, and left there.

18th.—Patient delivered about midday of a decomposing fœtus. Presentation by the breech. Delivery of the head was assisted by traction. No excessive hæmorrhage.

19th.—Ophthalmoscopic examination shows neuro-retinitis and white patches in both retinæ.

April 3rd.—Patient put on fish diet.

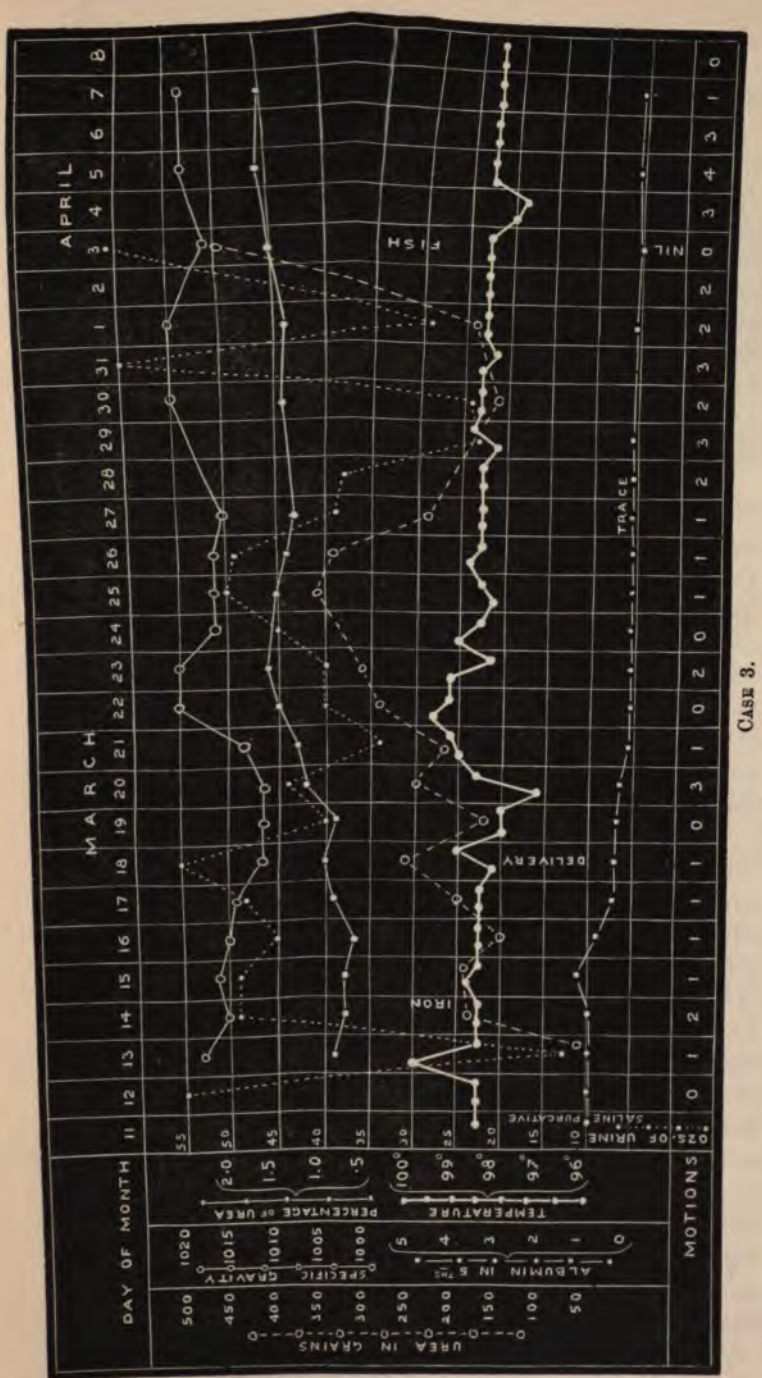
8th.—Discharged. Feels quite well. No œdema. Appetite good. Sleeps well. Trace of albumen still present.

Temperature.—This calls for no especial remark, as it never exceeded 100°.

Urine.—Instructions were given that all the urine passed by the patient should be collected and measured.

Quantity.—Taking into consideration that some urine was lost with the motions, the quantity of urine was slightly above that which is usually regarded as the average of health. The amount averaged 43 oz. per day before delivery, 42 oz. per day after. The bowels acted on the average once a day before delivery, about three times in two days afterwards. On the day of delivery the amount collected was larger than on the days immediately preceding and following, which looks as if some diuresis followed delivery. But, on the whole, the variations in the quantity of urine do not seem large enough to be important.

Specific gravity.—This ranged from 1012 to 1020. I shall refer to its variations in connection with the percentage of urea.


APRIL
MARCH
DAY OF MONTH
MOTIONS
URINE
SALINE PURGATIVE
TEMPERATURE
PERCENTAGE OF UREA
SPECIFIC GRAVITY
ALBUMIN IN E
UREA IN GRAINS
FISH
NIL
TRACE
DELIVERY
IRON

CASE 3.

Albumen.—On admission the urine contained one-fifth of its bulk of albumen. The amount of albumen began to diminish after five days' treatment by rest and milk diet, and before delivery had taken place. After delivery the diminution continued, and in a week had sunk to a trace. Throughout the rest of the patient's stay in hospital the urine contained either only a trace of albumen or none at all.

The relative amounts of serum-albumen and paraglobulin were unfortunately not ascertained.

Urea.—The percentage of urea on admission was below that which would have been expected from the specific gravity of the urine, the former being ·9, the latter 1012. During the five days preceding delivery the specific gravity of the urine diminished; but during the last two of these days the percentage of urea increased. After delivery the percentage of urea still further increased, reaching its maximum (1·6 per cent.) on the sixth day. After delivery the percentage of urea curve shows a rough correspondence with the specific gravity curve, which it did not before. The increase in the percentage of urea distinctly coincides with diminution in the amount of albumen. The total urea-excretion shows a marked increase after delivery as compared with that before delivery, although the patient's diet was unchanged. The urea eliminated before delivery averaged 156 grains per day. After delivery it averaged 269 grains daily; although, as has been mentioned, more was probably lost with the motions than before delivery. There was no deposit from the urine. Casts were not found. They were looked for, but I am unable to say how often. The urine at no time contained sugar.

November 19th, 1889.—Four weeks ago patient had what she thinks was a miscarriage. Says that she feels very weak, and that her head seems confused. Three months ago she had what she calls "convulsion fits;" this statement her friend who is with her confirms, and says they were attributed to indigestion; but neither can

give a very clear account of the fits. Has had no vomiting. There is slight œdema of right leg, none of face. Appetite moderate. She is anæmic. Arteries very hard. Retinæ show spots and patches, the results of old hæmorrhage. Urine (drawn with catheter) sp. gr. 1009, contains one-tenth of albumen, mainly serum-albumen, only a trace of paraglobulin.

December, 1890.—Urine contains ¼ albumen, and gives a deposit containing pus-cells, and a few epithelial casts.

This case differs from that which precedes it in some important particulars. There was not such great abdominal distension, the uterus being rather smaller than would have been expected from the patient's account of her period of pregnancy. There was no marked diminution in the amount of urine before delivery, nor marked diuresis after; and the change in the amount of urea eliminated was not so great. Unlike the other three cases recorded in this paper, and unlike most cases of eclampsia, the urine, instead of being almost solid with albumen, only contained about one-fifth. As in other cases, the effect of treatment by rest and milk diet was to diminish the amount of the albuminuria, and the effect of delivery to diminish it still further.

The urea-excretion was much below the average when the patient was admitted; it rose under treatment by rest and milk diet, and still further rose after delivery; but throughout it was below what is regarded as the average of health.

I may point out also that the symptoms in pregnancy were more marked than in the other cases, and that the disease persisted nearly two years afterwards.

The reading of the fourth case was adjourned until the following meeting.

NOVEMBER 5TH, 1890.

ALFRED L. GALABIN, M.D., President, in the Chair.

Present—41 Fellows and 3 Visitors.

W. H. Laurence Copeland, M.B.Cantab.; Harold Low, M.B.Cantab.; Frederick John McCann, M.B., C.M.Edin.; Harold Burgess Osburn, L.R.C.P.; Samuel W. Wheaton, M.D.Lond.; and R. Muzio Williams, M.D.Lond., were admitted Fellows of the Society.

Richard Ackerley, M.B., B.S.Oxon. (Ashburton); David Berry Hart, M.D.Edin. (Edinburgh); Charles David Green, M.D.Lond. (Upper Edmonton); John William Taylor, F.R.C.S. (Birmingham); and Edwin Francis White, F.R.C.S. (Putney), were declared admitted.

The following gentlemen were elected Fellows of the Society:—John Dysart McCaw, F.R.C.S. (East Finchley); Hugh Jones Roberts, M.R.C.S. (Penygroes); and Henry Bartlett Shillingford, L.S.A.

The following gentlemen were proposed for election:—Thomas S. Allan, L.R.C.P. and S.Ed. (Tonbridge); Skene Keith, M.B., C.M.Edin.; Edgar Ashley Lubbock, L.R.C.P.Lond.; John Reynolds, M.D.Brux.; and Frederick Sloman, M.R.C.S. (Brighton).

A CASE OF TUBAL ABORTION.

By J. Bland Sutton.

In May, 1890, I saw in consultation with Dr. Clegg, of Stratford, Mrs. N—, aged 26 years, the mother of two children, the youngest being six years old.

The patient complained of great pain in the lower part of the abdomen. The pain commenced suddenly three days before I saw her, and was accompanied by a free discharge of blood from the uterus. The catamenia had been quite regular during the last four years.

On examining the abdomen no swelling could be detected. The left breast was slightly enlarged, and milk could be easily squeezed from it. There was no difficulty with the bladder. On examining the pelvic viscera a rounded, moveable, tender swelling could be made out on the left side of the uterus, and a similar but larger swelling on the right side, but this was not tender. The patient was admitted to the hospital next day, and Dr. Boxall kindly saw the case with me. He suspected that it was a retroflexed gravid uterus. In order to settle the diagnosis chloroform was administered, and Dr. Boxall pushed the swelling on the left side upwards into the abdomen. It was then found to be distinct from the uterus, which was clearly not gravid. In the afternoon the patient complained of severe aching pain in the back, and had a very thin pulse, and at 6 o'clock the temperature rose to 103°. It was clear that some mischief had been done to the tumour. Next day I opened the abdomen and found the intestines swimming in blood. I seized the left Fallopian tube and drew it upwards. It was enlarged, the ostium widely dilated, and contained clots of blood. It was transfixed with silk, tied, and removed. On examining the right side an ovarian cyst

of the size of a large orange was found and removed in the usual way. The blood in the peritoneal cavity was now washed out by means of water at 105°, and the wound closed. On the evening following the operation the temperature rose to 102°, then slowly fell to normal; convalescence was uninterrupted, and patient left the hospital fourteen days after the operation.

On examining the parts removed at the operation I found the right ovary occupied by an "oöphoritic" cyst (Fig. 1), containing fluid largely charged with cholesterine.

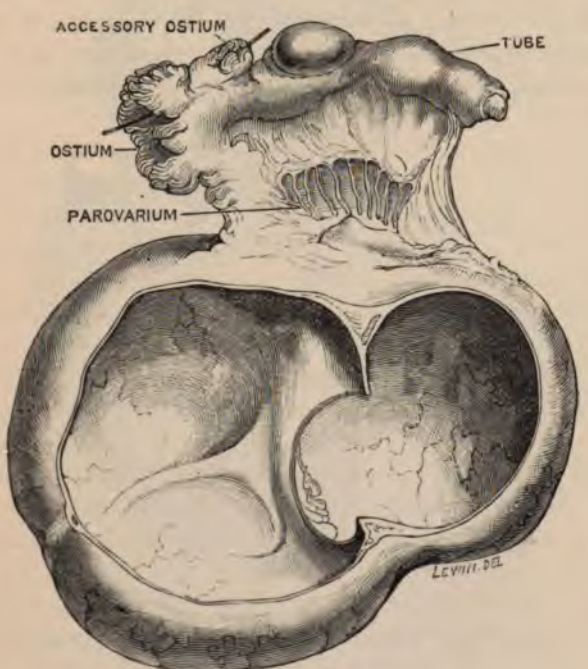


FIG. 1.—Ovarian cyst of the right side with an accessory ostium to the tube. (Case of Mrs. N—.)

The Fallopian tube, as shown in the drawing, presented an accessory ostium, a not infrequent anomaly. The uterine portion of this tube was unusually narrow, the corre-

sponding portion of the left tube was also very narrow, but its ampulla was congested and dilated to the thickness of the thumb. Its ostium was wide and patent. A rounded firm body as large as the kernel of a cob-nut was felt within the tube. On slitting up the tube, this rounded body was adherent by a small portion of its circumference to the tubal mucous membrane. The free portion of this body presented numerous small villous processes; its inte-

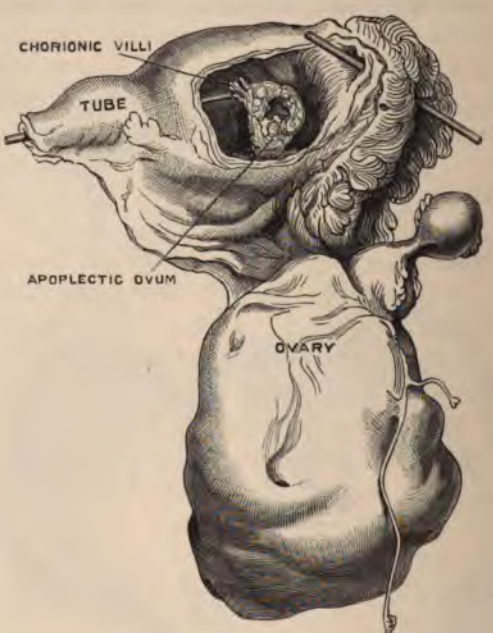


FIG. 2.—The left tube of Mrs. N— opened to expose the apoplectic ovum.

rior was occupied by a small rounded cavity which contained fluid, and the walls were lined by a delicate membrane. Portions of the wall were removed, hardened, and examined with the microscope. The sections consisted of blood-clot, mingled with chorionic villi. Thus the macroscopic and microscopic characters showed clearly enough that

this rounded body was what is called by obstetricians an "apoplectic ovum." The term signifies an ovum in which blood has been extravasated into its membranes and chorion.

The mucous membrane in the adjacent parts of the tube still retained its epithelium. The corresponding ovary was enlarged, cystic, and contained a recent corpus luteum. The dissection of the parts cleared up the nature of the case. This woman had an impregnated ovum retained in the left Fallopian tube. At the time she was seized with sudden pain, the ovum had become partially detached and the tube distended with blood. When this tube was pushed out of the pelvis fresh hæmorrhage was caused, probably through further detachment of the ovum

FIG. 3.—The ovum *in situ*. Its natural size is shown in Fig 2.

from the tubal mucous membrane. This is the third time in which I have found an apoplectic ovum in cases of tubal

pregnancy among the examples of ectopic gestation on which I have been called upon to operate.

I first called attention to the formation of an apoplectic ovum in tubal pregnancies in 1889. Recently Karl Keller and Orthmann have published in 'Zeitschrift für Geburtshülfe,' Bd. xix, a series of cases in which the ovum in the tube was converted into an apoplectic ovum. Keller reported three cases, and Orthmann ten; these cases confirm my observation in every particular. Keller's paper is very interesting, and he points out that tubal pregnancy may be arrested either by rupture of the walls of the gestation sac or the expulsion of the ovum into the peritoneal cavity through the abdominal ostium; this last he terms a *tubal abortion* in contradistinction to the escape of the ovum through a rent in the tube.

In order to make the case as complete as possible, a magnified view of the ovum is shown in Fig. 3. Many of the sections were carefully examined in the hope of finding some traces of the embryo, but with a negative result; it seems to have been destroyed by the hæmorrhage.

Dr. Griffith stated as his opinion that hæmorrhage into the chorion was found in varying degrees in every case of extra-uterine gestation in which rupture had taken place, and that whilst hæmorrhage might in some cases be the cause of rupture, it was undoubtedly more often the result.

SUPPURATING DERMOID CYST.

By W. Duncan, M.D.

OVARY AND TUBE WITH PAPILLOMA.

By W. Duncan, M.D.

CASE OF ACEPHALOUS ACARDIAC TWIN.

By Amand Routh, M.D., B.S.

This specimen of acephalous acardiac twin was presented to Charing Cross Hospital some months ago by Dr. Gibson Berkley, who acted as accoucheur at its birth.

It had remained in spirit till last week, when Dr. Lubbock, the curator of the museum, asked me to write a description of it for the catalogue. It is by these gentlemen's kind permission that I am allowed to show it to-night.

Dr. Gibson Berkley states that it was one of twins, both female, and thinks (though an interval of some months has elapsed) that there were two distinct placentæ and cords.

The woman was a multipara, and the acardiac twin was born first. The normal twin was but one-third of the proper size, and lived only three days.

The specimen is a good sample of the acephalous variety of fœtus acardiacus, marked by arrested development of the viscera and extreme œdema of the subcutaneous connective tissue.

The external genitals are those of a female, and the lower part of the vagina is patent. The anus is also present, and the rectum is patent throughout.

The difficulty in dissecting such a specimen as this, which had been immersed in spirit for a year, was great, and I was very glad to avail myself of the greater experience of Messrs. Bland Sutton, Alban Doran, and Dr. W. S. A. Griffith. The first very kindly enabled me to identify many of the points of interest.

There appears to be no trace of the head. The upper limbs are represented by the clavicles, and a nodule of bone which appears to be the head of a left humerus. The

spinal column, sacrum, and ribs are present, and the sternum is represented by an irregular mass of cartilage. The pelvis and leg bones are fairly well developed.

An umbilical hernia protrudes at the navel, and the cord is seen on its right. By making vertical incisions through the œdematous tissue in the two nipple-lines and reflecting the intervening integument upwards from the pubic arch, coils of intestine are seen and can be traced upwards to the hernia and downwards to the rectum.

On either side, level with the brim of the pelvis, is a genital gland, presumably an ovary. The vagina appears to end in a cul-de-sac. No uterus is distinctly seen. The bladder, with a patent urachus, is turned up with the reflected integument. Two lobulated kidneys, lying in contact in the middle line, are very distinct, and one ureter can be traced down to the true pelvis. There is a somewhat crescent-shaped body lying above the kidneys behind the ribs, which is possibly the heart, and a vessel representing the aorta can be followed downwards.

Behind and outside this visceral space are two large spaces with a membranous lining, containing a substance which resembles the tissue of the choroid plexus of the lateral ventricle of the brain; but the position of the spaces, posterior to the neural arch, point more to accidental cysts than to any developmental significance.

Mr. Alban Doran could not feel satisfied that a rudimentary heart existed. A trace of a heart was usually seen in acardiacus paracephalus, where rudiments of the head were present. This condition was figured in his own sketch of the specimen in St. George's Hospital Museum, which accompanied his notes on Mr. Trestrail's specimen of mylacephalous acardiac twin in vol. xxxi of the Society's 'Transactions.'

The specimen was referred to a committee consisting of Dr. Amand Routh, Mr. Bland Sutton, and Mr. Doran.

FOUR CASES OF PREGNANCY WITH BRIGHT'S DISEASE.

By G. Ernest Herman, M.B.Lond., F.R.C.P.,
OBSTETRIC PHYSICIAN TO THE LONDON HOSPITAL.

(*Continued from page* 339.)

Case 4. *Albuminuria; uræmic twitchings; cerebral hæmorrhage; induction of labour at beginning of eighth month; child living; diminished urea-elimination before delivery; after delivery rapid increase in percentage of urea and temporary diminution of albuminuria; renewed cerebral hæmorrhage; coma; death; no autopsy.*—This case is incomplete in many respects, but the records of the urine are interesting. (The notes were taken by Mr. R. A. Robinson, Clinical Clerk, under the supervision of Dr. W. J. Hadley, Resident Accoucheur.) R. B—, æt. 41, admitted into Victor Ward, London Hospital, January 28th, 1889. No previous history could be obtained, the patient being unable to give one.

January 31st.—The following note was made. Patient is thin but not anæmic. Speech thick and difficult to understand. Slight bilateral muscular twitchings. Pulse hard, arteries thickened. Heart's apex below sixth rib and just internal to nipple; no murmur. No œdema. Uterus reaches not quite halfway between umbilicus and ensiform cartilage; fœtal heart audible. Ophthalmoscopic examination shows nothing abnormal. Takes food well. Patient is understood to say that she has of late had a severe headache every evening, but has
Has had vomiting occasionally, but not

plains of bad cough. No abnormal signs in lungs other than bronchial râles.

In the afternoon and evening of this day, right hemiplegia with aphasia gradually came on.

February 1st, 3 p.m.—A bougie put into the uterus. 9.15 p.m., pains first noticed.

2nd, 1.30 a.m.—Patient delivered naturally of a living child, male. Not much hæmorrhage. Ergot given after delivery.

8th.—Patient's condition has gradually improved, paralysis lessening, speech returning.

After the last note was made, coma gradually came on, and patient died on February 10th, at 9 a.m. No autopsy was allowed.

Temperature.—This never exceeded 99°, and before death became abnormal.

Urine. Quantity.—It was only measured on two days, January 28th and 29th. The quantity was below normal, being 12 oz. the 28th (once lost with stool), 23 oz. the 29th (twice lost).

Specific gravity.—Here the record is also imperfect: January 30th and 31st it was 1020; February 1st, 1012; 4th, 1030; 5th and 7th, 1026: so that the specific gravity rose after delivery.

Albumen.—On admission the urine contained half its bulk of albumen. This continued till February 2nd (day of delivery) when it sank to one-third, and February 3rd to one-fourth. After this it increased again, so that on February 5th the quantity was the same as on admission. Delivery was thus followed by a diminution in the quantity of albumen. February 9th, the day preceding death, the urine was nearly solid with albumen. On January 29th and on February 9th the paraglobulin was separated from the serum-albumen, and it was found that the albumen was almost entirely serum-albumen.

Urea.—Before delivery the percentage of urea was less than the average, and less than would have been expected from the specific gravity of the urine. In the two days

following delivery it rose to more than double what it had been, and more than would have been expected from the specific gravity. During the four days preceding delivery it averaged 1·3. On the day after delivery it was 1·9, and during the six following days it was 3·15. The figures follow:

Before delivery.	*After delivery.*
Jan. 29=1·3	Feb. 3=1·9
„ 30=1·4	„ 4=3·1
„ 30=1·4	„ 5=3·6
Feb. 1=1·1	„ 6=3·2
	„ 7=3·1
Day of delivery.	„ 8=3·5
Feb. 2=1·5	„ 9=3·0

Deposit.—Before delivery, the urine contained epithelial and fatty casts. I have no note of the deposit subsequently. No sugar was found in the urine.

I publish this case because, like the others, it exhibits rapid increase in the urea-percentage following delivery, and also diminution in the albuminuria.

It would be premature to generalise as to the mutual effects of pregnancy and Bright's disease from these few cases. But the phenomena upon which I have commented show that there are such effects. The study of the details of cases is the only way of attaining definite knowledge on this subject, and therefore I have thought these cases worth bringing before the Society.

Dr. Leith Napier said that the cases recorded by Dr. Herman were a valuable addition to the knowledge already possessed regarding kidney disease in pregnancy. During gestation there was a specially unstable condition of the epithelial tissue in all the large glands, and, as might be expected, the kidneys frequently suffered. Dr. Herman's cases were illustrative of the fact that distinct renal disease might exist in pregnancy without any subsequent eclampsia. Twenty-five years ago Seyfert, of Prague, showed that, of seventy patients suffering from kidney disease during gestation, only two developed eclampsia. A more recent series of 152 cases, in which autopsies were made on puerperal and pregnant women who were found to have Bright's disease, showed that only 6·6 per cent. had eclamptic symptoms.

Bamberger in that series included acute chronic and atrophic renal disease. Braun, who has done more than anyone else to connect uræmia with eclampsia, estimated that 60 per cent. of women suffering from acute and chronic Bright's disease would develop convulsions. Spiegelberg, who most warmly espoused the uræmic origin of eclampsia, admitted that some cases could not be accounted for by pre-existent kidney disease. Some years ago Dr. Leith Napier had mentioned cases of chronic kidney disease in pregnancy which were not associated with eclampsia. He referred to one very highly illustrative case in which, although a pregnant woman who had contracted scarlatina and thereafter suffered from very well-marked nephritis, the pregnancy continued, and when, some months after, she was delivered, there was not the slightest interruption to a favourable recovery. He regarded the estimation of urea and albumen as of great importance, but he thought we required further information than we yet possessed, as to some points on which he would like to ask Dr. Herman's opinion—What was the normal amount of urea excreted during pregnancy? Was it greater or less than in the non-pregnant? Dr. Napier believed it to be less, and that there was almost invariably increased elimination after parturition. As to albuminuria, this occurred so very frequently in pregnancy from well-recognised causes, and was often so temporary in character that, unless we had other evidences associated, we must not attach too great importance to it. He thought that all albuminurics, whatever was the cause, were relieved after parturition. The existence of acetonuria in relation to eclampsia was of some importance. Lecorché* and Fehling† and also Byers had recently directed attention to this. Had Dr. Herman made any observations bearing on this point?

Dr. C. H. F. Routh admitted he was labouring under the disadvantage of not having heard details of Dr. Herman's first two cases, but he had heard the details of the last two and read the abstracts of the remainder. He did not think that they should be called cases of Bright's disease merely because albuminuria was present. It was well known that albuminuria often resulted from the pressure of tumours, such as ovarian cysts and uterine fibroids, on the kidneys. On the removal of these tumours the albuminuria disappeared. The same was frequent in pregnancy. Now he believed that unless casts were found in the urine likewise, and unless by the use of the ophthalmoscope evidences of neuritis and local congestion existed in the eye, we had no right to diagnose those cases as Bright's disease. He did not gather that in any of these cases, except the third, the usual ophthalmoscopic signs were observed. In this case the signs

* 'Annales de Gynécologie,' Oct., 1885.

† 'Physiol. u. Pathologie des Wochenbetts,' Stuttgart, 1890, p. 248.

were present but vanished after delivery. Puerperal convulsions produced by Bright's disease were capable of being arrested by removal of the pressure on the kidneys; this fact was proved by the cessation of the fits after delivery in most cases. Moreover, he remembered one case of terrible convulsions occurring every ten or fifteen minutes, one of the worst he ever saw, in which he was called in, and where in attempting to deliver he found prolapse of the cord. This he reduced on Sir James Simpson's plan by putting the patient on her belly. The moment this was effected the convulsions stopped and did not recur. It was to be understood how even in a case of Bright's disease, however slight, pressure might temporarily increase the kidney trouble, and produce convulsions; and hence it was safe practice to remove pressure in all cases by putting the patient in a prone position. The result proved how much was due to pressure of the superincumbent tumour or child.

Dr. HAYES spoke of the treatment of such cases. Considering the grave danger the woman was incurring (indeed, the danger increased generally as the gestation advanced—at all events this was so in later months), he thought that premature labour should be brought about much earlier than was customary, and not infrequently artificial abortion. The fœtus's life was generally compromised, it not seldom died, or was expelled too young to survive. Pronounced albuminuria should, in his opinion, always raise the question of early termination of the gestation. In the present series of four cases one mother had died, in two the albuminuria had continued, and one child had died.

Dr. HORROCKS said that any woman with Bright's disease in any form might become pregnant, and that when she did so she ran the risks of renal disease besides those of pregnancy. She might have eclampsia, and without eclampsia she might have dropsy, retinal and other vascular changes, and coma. He gave details of two cases of Dr. Galabin's, in one of which the patient had retinal changes and optic neuritis, and in another suppression of urine and coma. Both died, and at the post-mortem examination the kidneys were found to be respectively of the large white and small granular types. In neither instance was there any fit. He asked whether any differences in regard to the quantity and quality of the urea and albumen had been found in the present series of cases, compared with the former series, to warrant any conclusion as to the causal relationship to fits. He thought that the nervous system played an important part in the production of fits, and in the present series only one patient was single, and as she was a secundipara it could be imagined that she was not so perturbed mentally as she would have been had it been her first pregnancy. In the other three cases there was no mention made of mental shock.

Mr. ALBAN DORAN observed that there appeared to be three

diseases clinically distinct: (1) albuminuria associated with ovarian and other abdominal tumours, (2) the albuminuria of pregnancy, and (3) true Bright's disease complicating abdominal tumour or pregnancy. Of the first, he had seen dozens of cases. The urine was usually of high specific gravity, and the amount of albumen considerable, always disappearing after successful removal of the tumour. Eclampsia never occurred; never in the annals of the Samaritan Hospital had any case of the kind been recorded where fits took place when the tumour grew very large, or after a big tumour or many gallons of fluid had been removed. The second form was often associated with eclampsia. The third form of necessity existed in some cases, since Bright's disease was so common. Mr. Doran had for many years watched a case of this kind. The patient was all the better for ovariotomy, which he performed in December, 1883, and, though weak, remained, when last seen, several years afterwards, free from any sign of nephritis. He had observed similar cases in the wards of his colleagues. Patients subject to Bright's disease during pregnancy were usually all the better for delivery. Yet the general surgeon dreaded operations upon persons subject to Bright's disease, and not without reason. Mr. Doran ventured an explanation of this curious fact. After amputation of a limb, or ligature of a large artery, a patient with Bright's disease was, for the time, all the worse for the operation, and therefore in greater danger than before. The operation did not influence the kidneys in any favourable manner, and probably forced more work upon those diseased organs. After the taking away of a bulky tumour, or the birth of a fœtus, the patient was all the better, since a very grave complication, directly influencing the diseased kidneys was removed.

Dr. GRIFFITH stated that this was especially a subject in which obstetricians needed the help of physicians, particularly of those who made a special study of kidney-diseases. There were few subjects, except perhaps phlegmasia dolens, needing more information as to their natural course, and Dr. Herman's contributions were amongst the most valuable. He criticised the use of the term Bright's disease, because our knowledge of the disease of the kidney was too unsatisfactory, and he thought an indefinite term, such as the "renal affection" of pregnancy and parturition was free from such objections. Cohnheim's lectures on pathology, now in progress of translation and publication by the Sydenham Society, were valuable in relation to this subject.

Dr. HERMAN said that some of the questions asked, although interesting and important, were outside the scope of his paper. He had made no attempt to draw general conclusions as to the course of nephritis in pregnancy; as to the frequency with which renal disease in pregnancy persisted after delivery; as to the cause of eclampsia, or the relation between Bright's disease and

eclampsia. One speaker had asked as to what was meant by "Bright's disease." An eminent successor of Dr. Bright had said that we ought to speak of "Bright's *diseases*" rather than "Bright's disease," and he (Dr. Herman) had used the term in the comprehensive sense thus indicated. Many able writers on obstetrics regarded eclampsia as nothing else than uræmic convulsions occurring as the result of kidney-disease in pregnancy and childbed. There was very little evidence either for or against this view, which was mainly based on inferences drawn from our knowledge of renal disease apart from pregnancy. This series of cases, and others published in former papers, were an attempt to supply some data for the solution of this problem. These data were at present too few to permit general conclusions to be drawn from them. He did not think that in cases such as those which he had reported, the albuminuria was a simple result of pressure. The characters of the kidney which were the result of venous congestion, and the kind of urine secreted by such kidneys were well known, and the urine was quite different from that of the cases now reported. He had not discussed the treatment in the paper, but, as might be gathered from the mode in which his cases had been treated, he agreed with Dr. Hayes that induction of labour was the best course. He had made no investigations into acetonuria in pregnancy. In a former paper, published in vol. xxix of the 'Transactions,' he had collected all the observations that he could find recorded on the normal urea excretion during pregnancy and lying-in, and the results were so contradictory that it could not be said that we had any definite knowledge about it.

ON PLUGGING THE UTERUS IN SEVERE CASES OF POST-PARTUM HÆMORRHAGE, WITH NOTES OF A SUCCESSFUL CASE.*

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(Received February 1st, 1890.)

Dr. Auvard's 'Travaux d'Obstétrique,' published last year, contain an important monograph on "Tamponnement Intra-Utérin." He reviews the history of this treatment—plugging the uterus for post-partum hæmorrhage—which till recently had fallen into disuse, and assigns the credit of introducing it to Leroux. Dr. Auvard quotes a passage from an account of a case of post-partum hæmorrhage published in Leroux's work, "Observation sur les pertes de sang" (1776) in support of this view. The quotation is as follows: "The tampon introduced into the vagina came out the next day, while the patient was passing water; that *which was in the womb* was only expelled on the fifth day—it was soaked with a puriform fluid."

Dr. Auvard gives details of seventeen recent cases in which plugging of the uterus for post-partum hæmorrhage was adopted; nine of these were by Dührssen, two by Fraipont, one by Secheyron, and five were by Auvard himself.

Three of the seventeen cases died, but Dr. Auvard does not think that any one of the deaths can be ascribed to the treatment; for one died of eclampsia, one of tuber-

* The above heading does not accurately represent the scope of the paper, and should have been as follows:—"On a Case in which the Uterus was plugged for Hæmorrhage after Miscarriage at the fourth month, with Remarks on plugging the Uterus for Post-partum Hæmorrhage" (Author).

culosis (two months after delivery), and only one died of septicæmia ; in this case, too, immediate perineorrhaphy had been performed.

I read Dr. Auvard's monograph last summer (1889), and the results given seemed to me so encouraging that I determined to try the treatment in question if I should meet with any case of post-partum hæmorrhage where the usual methods failed to stop the bleeding.

Following Dr. Auvard's classification to some extent, cases of post-partum hæmorrhage may be conveniently divided into two classes :

1. Cases where the hæmorrhage is moderate.
2. Cases where the hæmorrhage is alarming.

1. *Where the hæmorrhage is moderate,* its cause may be slight uterine inertia or some trifling wound of the vulva, vagina, or cervix. Apart from the use of pressure-forceps or ligatures to bleeding points that may be accessible, cases in this category are usually successfully treated by—

Manipulation of the uterus through the abdominal wall.

The use of *hot* antiseptic injections to the vagina or uterus, and

The administration of ergot.

2. In the other group of cases, *i. e. where the hæmorrhage is alarming,* it may be due to—

Great uterine inertia, or

Some extensive laceration of the uterus.

In addition to the means already mentioned for controlling the hæmorrhage, there is—

The introduction of the hand into the uterus, and if that also fail, the only alternative hitherto generally recognised has been the application of perchloride of iron to the endometrium ; now, however, we have what appears to be not only a safer, but a more certain method of treatment, viz., *plugging the cavity of the uterus and vagina with some such material as iodoform-gauze.*

The notes of the case in which I adopted this treatment are as follows :—Mrs. M—, a lady about 25 years of age,

had a miscarriage on the evening of October 17th, 1889, when about four months pregnant.

She was an extremely nervous woman, and her medical attendant was almost certain that all the placenta had not come away, but she was so difficult to examine, that no more was done at the time, and he hoped that the rest of the placenta would come away spontaneously. However, the next day there was an extremely offensive discharge, and in the evening the patient had a rigor and a high temperature.

I was asked to see the case on the 19th October, about thirty-six hours after the miscarriage, with a view to a thorough examination being made under an anæsthetic. Chloroform was given by Dr. Hugh Smith, F.R.C.S., Resident Accoucheur at the London Hospital.

On examination the os was patulous, easily admitting two fingers; there was a putrid mass (subsequently found to be of the size of a hen's egg) partly protruding through it, firmly attached at its upper part to the posterior uterine wall. The patient was then placed in the lithotomy position, and the uterus drawn down to the vulva with a volsella; as much as possible of the mass was then removed with the fingers. The rest was taken away with strong ovum-forceps. So far, nothing unusual had occurred. In order to make sure that the endometrium had been thoroughly cleared, I then gently scraped the posterior wall of the uterus with Récamier's curette, an instrument that has a blunt edge, and scrapes without cutting. Some more putrid fragments of clot and placenta were in this way removed. It was at this time that alarming hæmorrhage suddenly occurred. I immediately irrigated the uterus with some very hot iodine water, which was at hand ready for washing out the uterus at the end of the operation. This did not check the hæmorrhage, which was so copious that I felt sure, unless it could be quickly stopped, the patient must die. Accordingly I determined to plug the uterus.

The anterior lip of the cervix being steadily held with

the volsella, a long strip of *dry* carbolic gauze, about as broad as the hand, and consisting of four thicknesses of the material, was carried up to the fundus with ovum-forceps, and the cavity of the uterus was packed as rapidly as possible, most of the packing being done by pushing up successive portions of the gauze with Récamier's curette. The first strip was not nearly long enough; a second was therefore knotted to its end.

Iodoform was freely sprinkled on the gauze as it was being inserted.

The early part of the plugging was somewhat difficult, because, owing to the large quantity of blood coming away, the gauze became so slippery that it was difficult to avoid bringing it out as the instrument used to push it in was each time withdrawn. As soon as a yard or so had been pushed in the process became easy.

The uterus and vagina were in this way tightly packed with carbolic gauze, sprinkled with iodoform, and a T bandage was put on very tightly to prevent the plugs from coming out.

The bleeding was completely stopped, and the uterus could be felt easily in the hypogastrium, though at the time the hæmorrhage occurred the uterus was so much relaxed that its outline could not be distinguished.

The gauze was left in till next day (twenty-one hours), it was then removed and the cavity of the uterus washed out with iodine-water. Antiseptic vaginal douches were used for some days longer. The hæmorrhage did not recur, and the patient made a perfectly satisfactory recovery.

Remarks.—It will be seen that the only instruments required for plugging the uterus are—

A volsella to hold the uterus while the plug is being pressed in, and *a long pair of ovum-forceps* to carry the gauze up to the fundus.

Smith's modification of Sims's speculum is useful, but not essential, and I found Récamier's curette very convevenient for packing in the gauze after the first portion

had been inserted with ovum-forceps. The curette being narrower has less tendency to pull the gauze out as it is withdrawn.

As regards the material used for plugging.—Dry carbolic gauze sprinkled with iodoform (in coarse powder) did very well in my case. Carbolic gauze is a stouter substance than iodoform-gauze, and therefore has the advantage that less of it will be required.

It is of course highly important to have an *ample* supply of whatever material is to be used.

In order to give some precise idea of the quantity of carbolic gauze required to fill a given space, I have tried how much can be pressed into a pint measure. The gauze used was four layers thick, and averaged four inches in breadth. It was found that thirty-four feet four inches were easily contained in the measure.

If about to plug the uterus and vagina after delivery at term, I should therefore like to be provided with not less than four times that quantity—that is to say, about forty-six *yards*.

So far as the data at present before us afford material for an opinion, I think that plugging the uterus and vagina is an effectual treatment for many cases of post-partum hæmorrhage that would otherwise prove fatal.

Dr. Priestley said he had listened with considerable interest to the reading of the paper, but he could not help wondering how some of the obstetricians of a past generation would have looked upon the proposition to plug in post-partum hæmorrhage. He rather thought that such men as Simpson, Ramsbotham, Rigby, and Arthur Farre would have looked upon the proposal with horror, and as contrary to all established principles. He could answer for it that, no long time ago, a candidate before the conjoint board who maintained that plugging was the best treatment for post-partum hæmorrhage would have been regarded as an unsound and unsafe practitioner; and if he was not mistaken, this candidate would have a bad quarter of an hour at the table of some of the present examiners. The Society was always glad to hear of new methods of practice in midwifery, and it was well that they should come before such a Society as the Obstetrical, because here the subject could be well threshed out,

and the reasons for and against fully debated. He thought, however, notwithstanding what had been stated in Dr. Lewers' paper, and the authority he had quoted in favour of the proceeding, that there were radical objections to it as a general method of treatment which would need more than a series of illustrative cases to remove. And he might say at once that the case given by Dr. Lewers as successful in his own practice was not quite a case in point. As the patient, he understood, was only four months pregnant, the uterus was but little developed, and plugging even of the vagina might have been quite a legitimate method, because there was no large and expansible uterine cavity above it for the accumulation of blood. (To plug the vagina at the full time would be to incur the risk of blood accumulating in the womb-cavity; and even if none escaped from the vagina, the patient might die of the resulting syncope.) At the full term of pregnancy the womb-cavity was so large and so dilatable immediately after the evacuation of its contents, that a very large amount of material would be required to pack it effectively, and the process of packing it, with bleeding going on the while, would be no easy matter either to the patient or practitioner. Some idea might be formed as to the amount of material required for stuffing the empty uterus, when it was remembered that the average weight of a child expelled was 7 lbs., and the placenta probably from 1 to 2 lbs. more. But he thought the most serious objection was that the method suggested directly opposed, indeed absolutely thwarted, the physiological process provided by nature for securing a parturient woman from losing an undue quantity of blood after delivery. It was well known that there was a wonderful mechanism of muscular fibres so arranged round the open mouths of the passage at the placental spot, that when the middle coat of the uterus began to contract on the separation of the after-birth, these open mouths were constricted and occluded. Any tampon, therefore, large or small, in the uterine cavity would prevent this mechanism coming into play; and if, perchance, it stopped hæmorrhage for the time, its removal might be followed by the last cupfull of blood, which in the much-exhausted patient had been said to be the cause of death. He repeated that, although always glad to discuss improvements in practice, he looked upon the treatment of post-partum hæmorrhage by the tampon as contrary to physiological principles, and as less worthy of trust than other methods which were now employed for promoting uterine contraction. So he trusted that the suggestion to adopt the practice in these days when there was so much desire for any new thing would not prove mischievous. In any case he hoped it would not receive the sanction of the Obstetrical Society as a general method of treatment in post-partum hæmorrhage.

Dr. PLAYFAIR said that he had no practical experience of the

method of dealing with post-partum hæmorrhage by plugging the uterus. It seemed to him, however, that there were obvious objections to this proposal, unless very cautiously carried out. Dr. Priestley had very well expressed what these were. It was an old-established axiom in midwifery practice that the plug was never applicable so long as there was any possibility of the uterus dilating behind it. A newly emptied uterus might very well contain a fatal amount of blood if only its lower segment were filled with the plug, and much care would be required to prevent the possibility of this occurrence. Dr. Lewers' was obviously not a case of post-partum hæmorrhage at all, but one of miscarriage with a retained and putrid placenta. Here dilatation of the uterus was not possible, and plugging might be very useful. The same might be said of secondary post-partum hæmorrhage during the puerperium, when involution had already partially occurred. In a bad case of this sort which he had seen some weeks ago, he intended to try this plan, the hæmorrhage having come on a fortnight after delivery. While waiting for the iodoform-gauze, however, he used hot-water douches into the uterine cavity, which effectually controlled the hæmorrhage. He should consider it no easy matter to pack a large flaccid uterus immediately after delivery. The burden the accoucheur had to bear was already sufficiently heavy; it would become intolerable if he had to carry about with him the forty-six yards of antiseptic gauze which Dr. Lewers estimated as the quantity likely to be required. Dr. Lewers was probably aware from his domestic experiences that the average amount of gauze required for a lady's ball-dress was about twenty yards. It was to be hoped that medical students in a panic would not quote him as an authority for poking the equivalent of two and a half ball-dresses into the uterus after delivery. One class of hæmorrhage seemed to him well suited for this treatment, and that was the kind dependent on lacerations of the cervix or vagina. These had been described by Gooch as "hæmorrhages with a contracted uterus," and in them the presence of a plug of antiseptic gauze would probably prove most efficacious.

Dr. CHAMPNEYS said that he agreed with Dr. Priestley and Dr. Playfair that Dr. Lewers' case had nothing to do with the title of his paper. The uterus at four months is incapable of dangerous expansion. He felt sure they must all have enjoyed Dr. Playfair's humorous picture of "The Bleeding and the Ball Dress," and he would have felt inclined *a priori* to agree with both the former speakers if he had not happened to read Dr. Dührssen's paper in 'Volkmann's Sammlung klinischer Vorträge' (No. 347, 1883, S. 2499). This gives a circumstantial and tabulated report of more than sixty cases so treated, giving all necessary details, such as the amount of bleeding, the effect on the patient, the presence of lacerations, and the means pre-

viously tried. He thought that, if the previous speakers read that, they would be obliged to confess that a new method must be added to our list, and that it must be accepted as a last resort instead of the dangerous injection of perchloride of iron. If plugged properly, from the fundus downwards, the uterus does not expand above the plug, which, on the contrary, acts as an irritant, and causes good contraction and retraction. The vagina is also tightly plugged. Of sixty-five cases of severe post-partum hæmorrhage thus treated, six died, one only of sepsis. No "ball-dress" is required, nor even is antiseptic gauze necessary, for any clean linen can be sterilised by boiling for five minutes in a saucepan or kettle with the lid on, to produce a uniform temperature of 212° F. or 100° C. The quantity of material required is less than would be supposed. Englishmen are supposed to live on an island, but Dr. Dührssen states in 1889 that the injection of perchloride of iron is regarded in England as a practice as important as vaccination. This was an instance of German insularity, and was at least twenty years out of date, if it ever were true.

Dr. Leith Napier, in view of what Dr. Champneys had said, asked as to the *rationale* of plugging the post-partum uterus. The post-partum was a very different organ from the post-abortum uterus. In post-abortum cases the practice was justifiable, but there seemed distinct objections to it in post-partum conditions. Most obstetricians held that hæmorrhage after delivery was immediately arrested by uterine contraction, and that subsequent bleedings were prevented by retraction. He wished to ask Dr. Champneys if he believed that an artificial clotting, on the top of a plug of limited size as described, could do more than permit temporary plugging of the uterine sinuses? Did normal retraction occur with this artificial clot inside the uterus? Dr. Leith Napier thought it likely that the plug acting as an irritant would tend to produce contractions in a healthy uterus; but, except in those rare cases in which there was absolutely no attempt at contraction, described as uterine paralysis at the placental site, he failed to see the necessity for or advisability of the procedure. The idea was by no means new; the treatment had been suggested long ago, but never met with more than very limited adoption.

Dr. Griffith did not look on this proceeding as in any sense new. He had been taught it when a student at the Sussex County Hospital in 1873, by a practitioner who had studied at Guy's Hospital, Plugging the uterus was an invaluable method for applying the perchloride of iron, and of course should only be used in cases in which ordinary treatment failed to ensure permanent retraction of the uterus and arrest of the hæmorrhage. He had done it in two cases. These, however, occurred before he understood the advantages of hot-water injections; since then

he had had no necessity for using anything else. Dr. Griffith, in these cases, used strips of lint (clean linen rags or diapers could be used in cases of emergency), the longer the better, two to three inches wide and a yard long. These strips could be used dry, or might be wrung out of a very dilute solution of perchloride of iron. The nurse having done so, should hand them nearly dry to the physician. He then passed them up rapidly to the fundus, taking special care to leave one end of each strip hanging in the vagina, so that they may be easily withdrawn. By the time a mass the size of one or two fists was inserted, the uterus would be found so firmly contracted that it would be impossible to insert more. It was quite unnecessary to plug the vagina. The plug should be withdrawn within twenty-four hours. Dr. Griffith had taught this at St. Bartholomew's for eight years, but it would rarely be found necessary.

[Dr. LEWERS, who was not present when his paper was read and discussed, wished to explain that it was only in those desperate cases of post-partum hæmorrhage for which the intra-uterine injection of perchloride of iron had hitherto been recommended that he would advise plugging of the uterine cavity. He regarded it only as a last resource when all the usual means failed to stop the bleeding. German and French statistics seemed to show that plugging in such cases was much less dangerous than the intra-uterine injection of perchloride of iron, and at least equally efficacious.]

DECEMBER 3RD, 1890.

ALFRED L. GALABIN, M.D., President, in the Chair.

Present—41 Fellows and 5 Visitors.

Books were presented by Dr. Braxton Hicks, Dr. Leith Napier, the Clinical Society of London, and the Medical and Chirurgical Faculty of the State of Maryland.

A. W. Mayo Robson, F.R.C.S. (Leeds), was declared admitted as a Fellow of the Society.

The following gentlemen were elected Fellows:—Thomas S. Allan, L.R.C.P. and S.Ed. (Tonbridge); Skene Keith, M.B., C.M.Edin.; Edgar Ashley Lubbock, L.R.C.P.Lond.; John Reynolds, M.D.Brux.; and Frederick Sloman, M.R.C.S. (Brighton).

The following gentlemen were proposed for election:—Ernest Dawson, L.R.C.P.Lond.; W. E. Picton Phillips, M.R.C.S.; and Frederick William Saunders, M.B., B.C.Cantab.

THE REGISTRATION OF MIDWIVES.

THE PRESIDENT said that, some questions having been asked about the action of Council in regard to the proposed Bill for the Registration of Midwives, the Council desired him to state the present position of that matter.

During the summer the Council was asked its advice in reference to the provisions of the bill then in charge of Mr. Pease. The Council considered the bill, and suggested a number of amendments in it, many of which were accepted by the committee in charge of the bill.

Since then the bill had again been greatly transformed, and the Council had not yet considered the details of the bill as now proposed. A special meeting would be held this month for the purpose. Meanwhile the Council had deferred the question of referring the subject to the Society at large.

POLYPOID MYOMA OF THE UTERUS.

By A. E. Aust Lawrence, M.D.

Dr. Aust Lawrence exhibited a large myoma of the uterus which had become polypoid and lay in the vagina, completely blocking the pelvis, and resting on the perinæum.

VESICAL CALCULI.

By A. E. Aust Lawrence, M.D.

Dr. Aust Lawrence exhibited several calculi which had been removed by vaginal cystotomy, in a case of old-standing prolapse of the uterus and bladder.

CAST OF A LARGE VESICAL CALCULUS.

By A. E. Aust Lawrence, M.D.

Dr. Aust Lawrence exhibited a cast of a calculus having as its nucleus a hair-pin. This calculus com-

pletely filled the bladder, and extended along two-thirds of the urethra. It was removed by crushing through the urethra.

CALCULI FROM A CASE OF PROLAPSE OF THE UTERUS AND BLADDER.

By Percy Boulton, M.D.

P. E. H—, aged 42, was sent into the Samaritan Free Hospital on July 12th, 1890, with complete prolapse of the uterus and pelvic viscera. The displaced parts formed a tumour as large as a cocoa-nut, protruding between her thighs. This condition was of eight years' duration.

On taking hold of the mass in front it felt like a bag of marbles, and it was evident that the bladder contained a number of calculi. The bladder had not been emptied for eight years, but the urine had overflowed from the urethra, which, now that the organ was prolapsed, lay uppermost.

On July 14th Dr. Percy Boulton replaced the viscera, and then dilated the urethra with Hegar's dilators, the patient being under chloroform.

He removed twenty calculi, of which five were of the size of a walnut and fifteen the size of beans. (These calculi were exhibited.) Two hundred and nineteen more stones, not unlike split peas, were either washed out of the bladder or passed in the urine and counted by the nurses.

The bladder was douched with boracic lotion and the parts kept up with a Zwanck's pessary. The next day the patient passed twenty-two ounces of urine naturally, and from that time continued to do so. The urine was of course alkaline, and contained one-tenth of albumen.

The patient returned home quite well.

FŒTUS, THE SUBJECT OF ATRESIA ANI VESICALIS.

By W. R. Dakin, M.D., B.S.

This specimen was an eight months' fœtus, born in an attitude of extreme retroflexion of the head and trunk, but with the legs flexed on the abdomen, which was hugely distended. It was born of the same parents as the fœtus with retroflexion and ectopia viscerum described at p. 200 of the present volume.

Labour.—The presentation was abdominal, and the cord had prolapsed. Death had occurred some days before birth, and the head was very soft and compressible. The presentation was no doubt due to the size and incompressibility of the abdomen, of which the circumference at the navel was fifteen inches, and the antero-posterior diameter seven and a half inches. On the other hand, the diameter which engaged, namely that lying between the front of the neck and the tubera ischii, was not more than six and a half inches, and could be very easily compressed into four and a half inches or less, the reduction being produced by yielding of the spine in the direction of retroflexion (Fig. 1). The cord, a yard long, was wound several times round the neck. The placenta was normal, and there was no trace of another fœtus.

Attitude of child and external deformities.—After birth, the child remained in the attitude in which it was born, and in which it had evidently existed for a considerable time, as the skin of the back was put on the stretch if the posture was altered.

There was a spina bifida arising from a myelocele in the sacro-lumbar region, and talipes varus and eversion of the knees. The legs and feet were closely applied to the

abdomen, and their deformity was probably caused by compression between the abdomen and the uterine wall.

FIG. 1.—Showing abdominal protuberance, deformities of legs and feet, and spina bifida. (The fœtus is in the attitude maintained during labour.)

Alimentary and genito-urinary systems.—There was complete fissure of the palate, but no abnormality in the pharynx or other part of the alimentary canal down to the end of the large intestine; this was found to open into the back of a large cyst, as will be described. There was no anus, nor even a dimple representing it.

On opening the abdomen, the distension was seen to be

caused by the large cyst above noted. This measured six and a half inches from back to front, four inches from

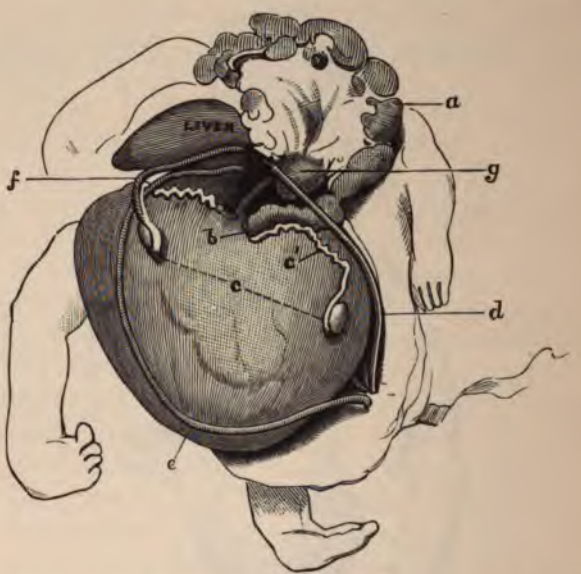


FIG. 2.—Cyst turned down, showing (*a*) large intestine, opening at *b*. *c*. Testicles. *c'*. Left vas deferens. *d*. Umbilical vein. *e*. Right umbilical artery. *f*. Right spermatic artery. *g*. Kidney with ureter.

above downwards, and three inches across. It was entirely above the brim of the pelvis, and reached from the front of the lumbar spine to the umbilicus, being attached to the latter by a very short strand of tissue (one quarter of an inch long), evidently the urachus. Closely applied to and running along each side of the cyst was an umbilical artery; the right was much larger than the left.

The testicles were very small, at first glance they were taken for mesenteric glands. They lay on the upper and postero-lateral part of the cyst, one on each side. Their ducts were seen to converge and enter its wall about halfway down.

On opening the cyst about four ounces of urine, with flakes of meconium floating in it, escaped. There were four orifices on the inner surface; three on the posterior wall (Fig. 3), and one over the pelvic inlet. The last led

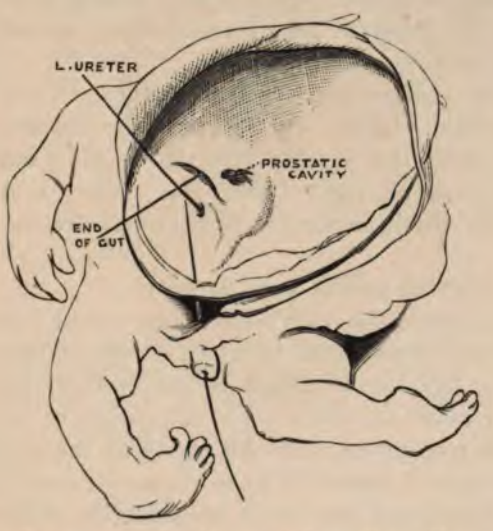


FIG. 3.—Cyst opened, showing prostatic cavity, orifices of left ureter and of gut, and position of urethral orifice (internal). Urethra is seen leading from bladder to penis.

into a very long urethra, much stretched by the elevation of the cyst. It was evident now that the cyst consisted of bladder *plus* the upper part of the allantois, which should have become urachus, and the prostatic urethra which was expanded to form the posterior and lower part of the cavity.

The urethra admitted a bristle for a very short distance from both the vesical and penile end. It was one-and-a-quarter inches long from the cyst to the pubes, and in the middle of its course was almost but not quite impervious.

The other three orifices were close together; one was a slit leading into a blind sac, which probably represented the prostatic vesicle, as the seminal ducts ended one on

each side of it. The sac was large enough to contain a small pea, its mucous membrane was redder and rougher than that of the rest of the cyst, and a tract of very thick white mucous membrane about half an inch wide and two inches long extended from it to the opening of the urethra, and was the prostatic mucous membrane spread out.

There was no prostate gland.

The two orifices remaining were those of the intestine and the left ureter. Of the two the former was the smaller, and either readily admitted a No. ½ catheter.

There was no right kidney or ureter, and the left kidney was hydronephrotic, with, however, an undilated ureter.

Both adrenal bodies were present.

All organs of the body here unmentioned were normal.

Method of production of abnormality.—Together with failure to develop a cloacal orifice (which should occur normally about the fifth week) the lumen of the gut had remained continuous with the cavity of the allantois, and the contents of the bowel were evacuated into this cavity. The urethra must have been incompletely developed, and the outflow of urine interfered with to some extent, so the cyst became distended, rising out of the pelvis and stretching the urethra (membranous portion) till it was nearly occluded. The backward pressure would then act on the kidneys, and caused in this case hydronephrosis of one and disappearance of the other.

Spina bifida is of common occurrence in combination with malformation of the alimentary tract, for reasons now pretty universaliy accepted.

The cause of the talipes has been mentioned.

The retroflexion was entirely due to the pressure of the cyst, and disappeared on its evacuation.

Previous occurrence in family of an allied form of monstrosity.—An interesting feature of the case was that the fœtus was born of the same parents as another, the subject of retroflexion of the spine, ectopia viscerum, &c., shown in its fresh condition by the writer in November of last year,

FIGS. 4 and 4A.—*Mode of origin of abnormality.*

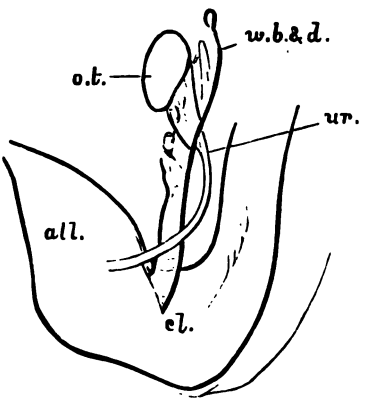


FIG. 4.—Previous to formation of primitive cloacal opening; allantois attached to anterior wall of gut with a continuous cavity. *o. t.* Ovary or testis. *w. b. & d.* Wolffian body and duct. *ur.* Ureter. *all.* Allantois. *cl.* Gut.

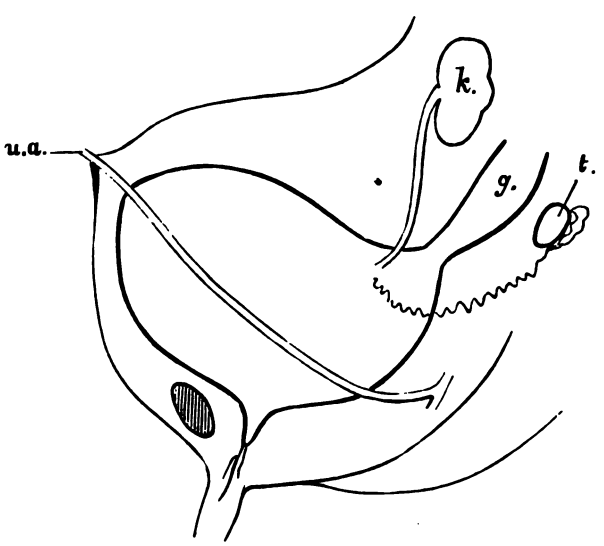


FIG. 4A.—Parts as developed in present specimen. *u. a.* Umbilical artery. *g.* Gut. *t.* Testis. *k.* Kidney.

and subsequently dissected and described in the present volume (p. 200). In this case also all the abnormalities could be traced to a failure in development of the hind gut and its processes (see pp. 212—214).

Dr. HORROCKS mentioned a case in which there was atresia of rectum, vagina, and urethra in a female child. The bladder, uterus, and bowel formed three distended cavities causing so much dystocia after the delivery of the head that the uterus ruptured and the patient died. The fœtus was dissected carefully by Mr. Targett, and was now in the museum at Guy's Hospital.

PAPILLOMATOUS OVARIAN CYSTS REMOVED DURING THE FOURTH MONTH OF PREGNANCY.

By W. A. MEREDITH, M.B., C.M.

SARCOMA OF THE UTERUS REMOVED BY VAGINAL HYSTERECTOMY.

By W. J. Gow, M.D.

THE patient was a woman, aged 49. She was admitted into the Metropolitan Free Hospital complaining of uterine hæmorrhage. A soft, friable, pedunculated mass, as big as a large orange, was found projecting into the upper part of the vagina. Its stalk could be traced up through the internal os. This mass was removed with an écraseur. A few weeks later the entire uterus was removed through the vagina. The broad ligaments were secured with silk ligatures. The patient made an excellent recovery. The growth, which proved to be a lympho-sarcoma, originated in the wall of the uterine cavity close to the orifice of the left Fallopian tube.

RUPTURED UTERUS OCCURRING DURING LABOUR AND AFTER EXTERNAL VIOLENCE.

By John Phillips, M.D.

The patient, aged 37, was the mother of ten children, and had had no miscarriages; all her previous labours had been quite normal and easy, the vertex presenting in every case.

On the evening of July 11th, 1890, her labour being nearly due, she was violently kicked in the right groin by her husband, who was intoxicated and was wearing at the time heavy hob-nailed boots. She became sick and faint, and was in considerable pain during the whole night.

Twelve hours after the assault her labour came on; everything progressed well until 9 p.m., when she complained of considerable tearing pain in the lower abdomen accompanied by a sensation of faintness. Soon afterwards the pains became less frequent; the presenting breech not advancing, and the abdominal pain being constant, I was asked to see her. I found an extensive purple bruise in the right groin; the patient was in a cold sweat, her face ashen coloured, with a small but regular pulse of 130 per minute. The breech was presenting and lying on the perineum. The pains occurred at intervals; they were very feeble in character, and appeared to have no effect on the advance of the presenting part.

I delivered as rapidly as possible by passing a silk handkerchief over the right thigh by means of a copper wire. Extraction was quite easy. On passing my hand into the vagina, I found a nearly transverse rent anteriorly in the genital canal. Several loops of intestine could be distinctly made out.

I expressed the placenta, and after injecting the patient with ether subcutaneously, went away to procure assist-

ance and the necessary instruments for laparotomy. On my return, however, she was pulseless and moribund, and died shortly afterwards.

Post-mortem.—The abdomen was enormously distended; there was well-marked emphysema of the abdominal wall and subperitoneal tissues. More than two quarts of blood in a fluid state with clot were removed from the posterior cul-de-sac. The bladder was uninjured.

The uterus after removal showed an oblique tear four and a half inches long anteriorly and to the right, through the lower segment; the rupture through the tissues was complete. The uterine tissue elsewhere was quite healthy.

It was concluded that the kick had lacerated some of the uterine fibres, and that complete rupture ensued with labour.

Dr. Phillips had exhibited this specimen for three reasons: (1) The rarity of rupture at this site. (2) The unusual cause of the rupture, similar somewhat to the so-called "cattle-horn" ruptures. (3) The questions arising medico-legally from such a case.

NOTE ON THE OPERATION FOR RESTORING THE PERINEAL BODY IN COMPLETE RUPTURE OF THE FEMALE PERINEUM.

By A. E. Aust Lawrence, M.D.

(Received March 20th, 1890.)

Having operated on thirty cases of complete rupture of the female perineum I am induced to bring before this Society what I consider to be the chief points which must be attended to in order to obtain success.

Twenty-eight of my cases succeeded perfectly at the first operation. The other two were successful after the second operation. All the cases suffered from incontinence of fæces and inability to restrain flatus, the rupture in all being completely through the lower portion of the rectum. In all the operation was an absolute necessity. Now the secret of success in repairing this injury consists in freeing the rectum from its attachments in its abnormal situation, and in bringing it down and fixing it in its proper place.

The operation I perform is that known as splitting the septum, for the first idea of which I was indebted to Mr. Lawson Tait.

M. H— at her first confinement had the perineum ruptured through into the rectum, with the result of incontinence of fæces, &c. A local surgeon tried to restore the perineum, and failed after two operations.

When I saw the woman she had a large hole through which I could pass my finger between the rectum and vagina, and the partially restored perineum had also two large holes in it.

I slit the remaining tissues up, and on passing my finger deep down in the wound I felt some wire sutures which had been there some months. As one step of the operation I picked away with forceps and scissors until I had removed all these wire sutures, and then I found I had so freed the rectum (that is to say, the anterior portion of it) that I was enabled to draw it down level with the skin, and I further found that there was no traction on the bowel, and that all I had to do was to pull the lower end of the bowel down and back, and sew up the perineal wound in front of it. The result was perfect union and complete restoration of the perineum.

The steps I take in this operation are as follows: I operate, as a rule, three days after a menstrual period has ceased. I have the bowels made to act well each day for one week prior to the operation. On the day of the operation there is no action solicited. For one day before the operation and for ten days after, only liquid nourishment is given. The patient is of course kept in bed. No opium is given. The catheter is used every eight hours. One week after the operation the bowels are relieved by giving small and repeated doses of confection of senna and sulphur, and thenceforward a daily action is obtained. The sutures are removed on the tenth to fourteenth day, when the wound is found to be perfectly healed and the patient has regained control of the rectum.

The operation itself is done as follows: I run the blade of a fine pair of scissors along the sharp edge of the cicatrix in the recto-vaginal septum, and at each end of this wound I carry the incision about one inch forward into the labium. This flap is now pulled forwards by two pairs of Wells's forceps, and sufficiently freed by a few snips of the scissors; this now gives a certain amount of raw surface. The important part of the operation is now to be done. I take hold of that portion of the septum left, after what may be termed the vaginal portion has been carried forward. I regard this portion as furnishing

a new rectum. I take hold of it in two places with Wells's forceps, and make a clean cut with scissors on each side backwards for about half an inch, and then snip away in front and to the sides, until I can bring down a complete tube to the level of the skin of the perineum. When this is done I simply have this new rectum held back and sew up the wound in front; by so doing the perineal body is formed with the rectum once more in its normal position. I use pure carbolised silk for sutures, and bury most of them completely in the wound. In introducing the suture I do not include the skin. I am sure there is less pain when the skin is not included in the sutures. Also if any swelling takes place in the new perineal body, the sutures can sink in a little on the free surface and so take off the tension of the deeper parts. Before commencing the operation I pass a piece of sponge up the rectum and another piece up the vagina; these of course are removed after the operation is finished. The after-treatment is, as I have already mentioned, exceedingly simple.

There are some cases where it is impossible to bring down a complete tube, owing to great loss of tissue; then I bring the rectal portion down as a tube incomplete in front, turn in the raw surfaces, while they are still held by forceps, and pass my perineal sutures through these flaps. Thus the tube is completed. I am sure the real secret of success lies in completing the rectum, and fixing it as an entire tube behind the new perineal body. The anus in all my cases, directly the operation is finished, bulges out as if afflicted with hæmorrhoids, and if a motion took place immediately, nothing could possibly enter the perineal body.

THE PURSE-STRING SUTURE: ITS USE IN COMPLETE RUPTURE OF THE PERINEUM.

By PERCY BOULTON, M.D., M.R.C.P.LOND.,
PHYSICIAN TO THE SAMARITAN FREE HOSPITAL.

(Received April 11th, 1890.)

(*Abstract.*)

THE paper describes an operation which the author has employed successfully in seventy-three cases of complete rupture of the perineum. The method of using the purse-string suture is explained, and it is claimed that by means of it the sphincter ani is more perfectly restored than by other methods of operating.

A series of diagrams accompany the paper. The so-called "perineal body" is formed by the elastic tissue which constitutes the attachments of the posterior part of the sphincter vaginæ, together with that of the two transversales perinei muscles and the anterior attachment of the sphincter ani.

The loss of these attachments by complete rupture is shown in Fig. 1.

The posterior vaginal wall has shortened so as to form a thick tongue at Y, while the sphincter ani and transversales perinei have retracted behind the rectum, and the sphincter is seen there in nearly a straight line forming numerous rugæ.

Fig. 2 represents the lines of incision necessary for repair. The tongue Y is dissected up to A C. The ends of the sphincter are laid bare at F B and G D, and the points A B and C D are connected by incisions. The tissues between these letters are denuded.

Fig. 3 shows the rectal tear (F E G, No. 2) closed by two gut

sutures tied in the bowel. The purse-string suture is seen passed through the ends of the exposed sphincter ani and up the recto-vaginal wall as far as the base of the tongue Y.

Fig. 4.—The purse string is tied, showing the circle of the sphincter perfectly restored, and the three sutures are in place for closing the perineum.

So many operations for the repair of the female perineum have been described that some might believe that nothing new remained to be said on the subject. Great improvements have, however, taken place within the last thirty years.

In the days of quill-sutures, sloughing of the tissues and failures followed long operations of an hour or more, and the period of convalescence frequently extended over a month.

An ordinary perineorrhaphy can now be completed in ten minutes; the cures should be 100 per cent., and the patient need not be confined to her bed for more than ten days. Nothing can be more certain or more perfect than this, and it is only when we come to complete rupture, the tear extending through the sphincter ani into the bowel, that there is still room for discussing the methods of operation.

I believe that many experienced operators not infrequently fail to restore the power of the sphincter ani so that it will hold liquid fæces and flatus, the reason being that without such a lever as the purse-string suture it is difficult to raise the ends of the muscle to the centre of the perineum and keep them there so as to complete the circle of the sphincter, which remains weak in front even when the recto-vaginal wall is perfectly restored. Till 1880 this was frequently my own misfortune, and it was in that year that I commenced the treatment of the sphincter by the "purse-string" suture.

The operation as practised by me was described by Mr. Alban Doran in his "Gynæcological Operations," but verbal descriptions imperfectly convey the various steps of

the operation, which is not difficult or complicated, and in the worst cases can be completed under thirty minutes.

Up to the end of July, 1889, I had operated seventy-three times. In no case has it been necessary to repeat the operation, and in only a few has the result been anything but perfect. In some of the earlier cases I found the sutures cut from too tight tying, but not so as to entirely spoil the result.

The operation, difficult to describe, is easy to demonstrate, and in the absence of a subject I propose to do this by means of diagrams.

First, it is necessary to bear in mind the anatomy of the perinæum.

The so-called perineal "*body*" is really nothing but the fibro-elastic tissue at the fourchette forming the attachments of—

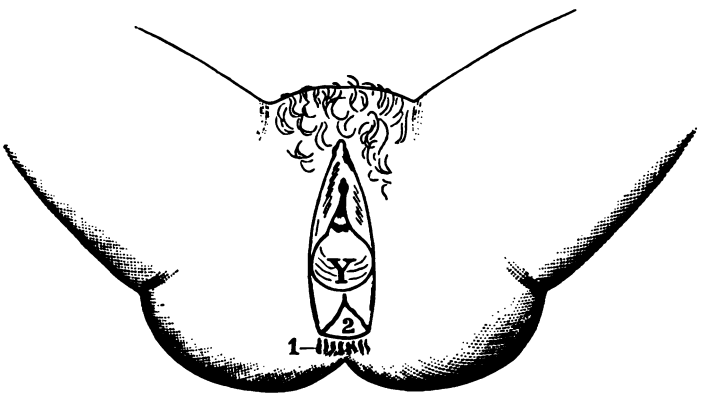
1. The sphincter ani in front.
2. The two transversales perinei muscles.
3. The posterior attachment of the sphincter vaginæ.
4. The longitudinal posterior muscular fibres of the vagina.

When the perineal body is completely torn through, the transversalis perinei retract and draw with them the two ends of the sphincter ani behind the rectum. The posterior vaginal wall having lost its attachment shortens an inch or more and is seen as a thickened tongue up the recto-vaginal wall. This is shown in Fig. 1.

To repair this according to my method so as to bring all the parts again to the central point where they meet, it is necessary to denude the parts as shown in Fig. 2. The tongue Y is split and dissected up to A and C. The lateral incisions A B, C D must be carried backward far enough to expose the ends of the sphincter ani between B F, and G D.

If the (more or less) triangular opening into the rectum be large, it should be closed by two or three gut sutures, tied inside the rectum, cut off short and left. If it be not large the purse-string suture will encircle and close it.

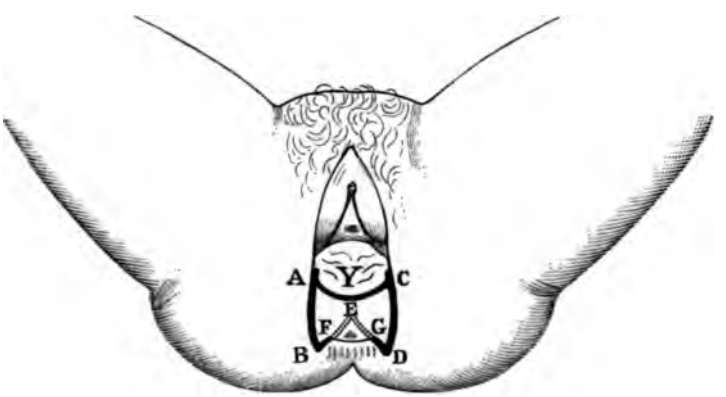
FIG. 1.



Complete rupture.

1. Retracted sphincter.
2. Rectal tear.
Y. Vaginal tongue.

FIG. 2.



Incisions necessary for restoration shown by lettering and thick black lines.

Before stitching the rectal tear, the recto-vaginal wall is split, the posterior and thicker part being turned somewhat backward into the bowel when the gut sutures are tied, while the anterior portion is dissected off up to the tongue Y, (Fig. 2), thus completing the necessary denudation. The tongue Y is now held up by means of a pair of "Wells's" pressure-forceps and the purse-string suture is introduced in the manner shown in Fig. 3. The gut sutures are seen already tied so as to close the rectal tear.

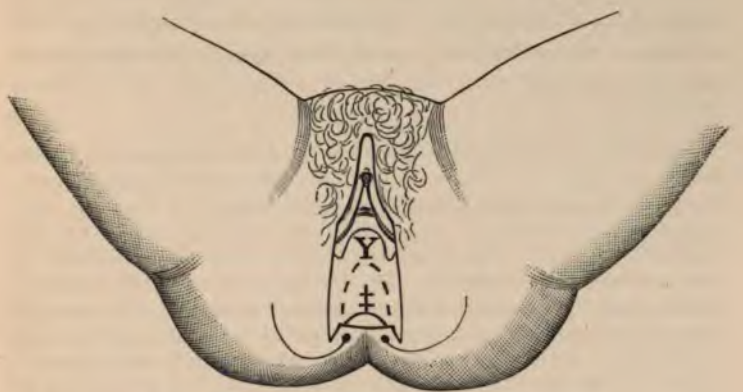
The "purse-string" suture is now passed, entering the end of the sphincter ani at one side, running through the recto-vaginal wall up to the base of the tongue Y, which is supposed to be held upward and forward. Here the suture crosses, taking a firm holding at the base of the tongue, and returning on the other side and through the sphincter ani in precisely the same way as before. Now the "purse-string" should be tied, and it will be seen that in doing this the posterior vaginal wall is drawn downwards, while the two ends of the sphincter ani are raised up to the centre.

Three silver sutures are now passed as in any ordinary perineorrhaphy (Fig. 4). The lowest one catches the restored sphincter ani and takes most of the strain off the "purse-string." The upper one transfixes the tongue Y, and the third is placed between.

When these are closed the operation is completed. The perineal stitches include a quarter inch of skin at either side, and this is turned outwards by assistants, each with a pair of catch-forceps, as the parts are brought together.

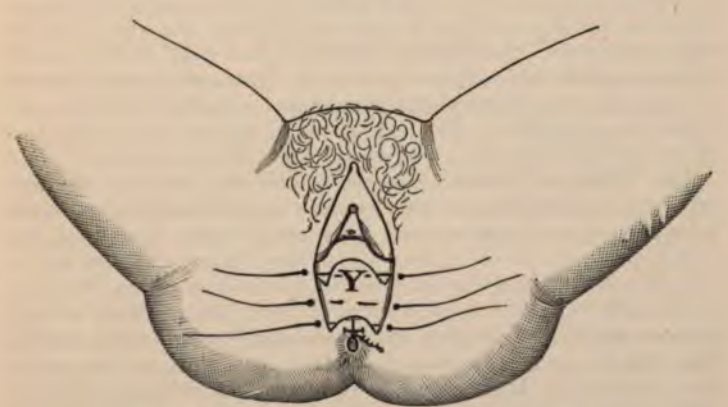
The after-treatment is perfectly simple: The patient's knees are tied together, and she may lie on either side. The urine is drawn three or four times in twenty-four hours for the first three days, after that she turns on her face and passes it forwards. Nothing but liquid diet is given till the bowels have acted with medicine on the fifth day, great care having been taken before the opera-

FIG. 3.



Rectal tear stitched. Purse-string suture in place.

FIG. 4.



Purse string tied. Perineal sutures introduced.

tion to clear the bowels by repeated purgation. The parts are kept perfectly clean and as dry as possible. Carbolised iodine lotion is used for bathing, and dry boracic wool pads are placed over the vulva and kept in place by a T bandage. On the eighth or ninth day the stitches are removed, and on the fourteenth day the patient usually gets up.

Dr. JOHN PHILLIPS thought that the contributions were additional evidence in favour of the two recognised forms of perineorrhaphy, namely the flap-splitting operation of Lawson Tait and the "purse-string" operation so well described by Dr. Gaillard Thomas. His own experience was entirely in favour of the purse-string operation. Dr. Phillips had operated nineteen times after that method with seventeen successes. He thought that individual dexterity had much to do with the result in this operation, but that it mattered little what variety was adopted. The preparation and after-treatment were most important, and he was glad to see that Dr. Aust Lawrence gave neither opium nor alcohol. His own plan was to place a small gum-elastic catheter in the rectum after operation to give exit to flatus, and to open the bowels on the fourth day. He considered catgut ligature much the most suitable, as it tied better than silk-worm gut and adapted itself better than silver wire.

Dr. HORROCKS said that his colleague Dr. Galabin and himself at Guy's Hospital were in the habit of using catgut for those ligatures which were tied in the rectum, and silk-worm gut for those tied more superficially, because it had been found practically that the union sometimes broke down and the success of the operation was somewhat impaired in the endeavour to remove these rectal stitches. The catgut could be left to dissolve, and it was an easy matter to remove the superficial stitches.

Dr. WILLIAM DUNCAN disagreed with the previous speaker who said that the transverse sutures in the torn septum were unnecessary, as he considered them vital to the success of the operation. He thought that since the flap-splitting operation was introduced and the quill-sutures abandoned, the restored perineums were not nearly so strong; and he had seen several cases in which, some months after operation by eminent specialists the reunited perineum had stretched, and a second operation was necessary. He now always kept the patient's bowels open daily, and considered this plan far better than that of locking them up for several days.

Dr. HANDFIELD-JONES was unable to accept the view that the rectum was drawn upwards in cases of complete rupture of the

perineum, and needed to be freed and drawn down at the operation. Careful examination of the parts on the fourth or fifth day after rupture showed that the edges of the torn rectum were rolled outwards and forwards by the retraction of the elastic tissues towards the ischio-rectal fossæ. In a similar way, the mucous membrane of the ruptured posterior vaginal wall was drawn outwards and backwards. The effect of the septum-splitting operation was to release the ends of the two torn passages; and it was wise to restore the integrity of these two canals by suturing with carbolised catgut, before proceeding to pass the transverse stitches which drew together the edges of the torn perineum.

Dr. Heywood Smith referred to Dr. Duke's modification of the flap-splitting operation introduced by Mr. Lawson Tait. It appeared to be the best method of operating in cases of ruptured perineum in the first and second stages. In Dr. Duke's operation there was no need for the incisions at right angles to the main incision, and no necessity to set free an anterior and posterior flap at each end of the main incision. After the flap-splitting incision was made, the two opposite lateral corners were brought together, lozenge- or diamond-wise, and the sutures were at once inserted. With regard to the management of the bowels, he was convinced that the proper plan was to get them opened the day after the operation and on every subsequent day by small doses of castor-oil, as then there was less chance of the newly-adhering parts being torn through.

Dr. Gervis said he had practically used the purse-string suture for many years. He always passed his lowest suture, in cases of laceration of the recto-vaginal septum after repairing the laceration, from sufficiently far backwards to take up the ends of the sphincter, to beyond the termination of the laceration in front. His transverse suture he also passed from side to side through the thickness of the septum. In repair of the laceration he now used fine catgut, and cut it off short on the rectal side. Formerly he used silk, and brought the ends out through the newly-made anus, allowing them to come away of themselves. Like Dr. Duncan, he had seen many excellent results from the quill-sutures.

Dr. Playfair said that no subject in gynæcology had been so thoroughly worked out as perineorrhaphy. Everyone seemed to think himself bound to suggest something new, and yet all the suggestions made came to much the same thing. For his own part he had tried every kind of operation, and got admirable results with all. It was not so much the precise operation that was of consequence as care in its performance, and accurate adjustment of the denuded surfaces. If this was well attended to, no matter what precise procedure was followed, a good perineal body would be made. If he was to select, he would

choose Mr. Tait's flap-splitting operation when the recto-vaginal septum was not torn, and some such procedure as Dr. Bantock described when it was. Then he always used bruised catgut sutures for the split. Of late years he had also discarded silver wire for chromic gut, as the latter seemed decidedly less painful for the patient. As to the purse-string suture, it was obviously much the same thing as the lower suture described by Thomas. It was a matter of supreme importance to insert this low down on either side when the sphincter was destroyed, so as to bring its torn ends into apposition. If this were not done the perineum might unite in front of the anus, and yet leave the patient without any efficient control of the bowel, and thus the main object of the operation would prove a failure.

Dr. AUST LAWRENCE said that his short note on the perineum-operation was simply to bring out the important point of freeing the rectum and bringing it down.

Dr. PERCY BOULTON, in reply to those speakers who thought that good results could be got without the use of a "purse-string" suture, said that he had expressly stated in his paper that the object of it was to raise the ends of the sphincter to the middle of the perineum, and that in his experience nothing did this so effectually and well as this suture as he used it. It was true that, having got the sphincter into its place, it could be fixed there by the lowest perineal stitch, as suggested by Dr. Bantock, and this was Dr. Boulton's practice, as named in the paper and shown in Diagram 4. Moreover, in some cases where the woman's tissues were so soft that the stitches cut easily, he frequently let go the purse-string suture after three or four days, as the case might be, trusting then only to the cross stitches. The results were good, but the value of the purse-string suture as a lever could not be over-estimated in Dr. Boulton's opinion. It did three good things—it was a lever to raise the ends of the retracted sphincter, it drew down the recto-vaginal wall, and it made the rectal tear doubly secure. In this last advantage only was it truly a suture, and it was only for this purpose that it had been used in America, as named by Dr. Playfair, and without any reference to raising the ends of the sphincter. Dr. Boulton preferred silver wire for all the sutures, and used it in two thicknesses, No. 5 for the purse-string, and a slightly stouter wire for the perineal stitches. He thought they cut less than gut, and when the ends were twisted together they were a mutual support, and kept the parts, as it were, fixed and at rest, which was one of the first principles of surgery.

HABITUAL ABORTION.

By A. D. Leith Napier, M.D., F.R.S.Ed.

(Received April 5th, 1890.)

(*Abstract.*)

Some authorities assert that "habitual" abortion is often due to indefinite sources of uterine irritation impossible to recognise. Others esteem syphilis as the most common cause of habitual abortion. Both views are disputed. Apart from disease, malformation, or physiological incompetency, there is no "habit" of aborting. The pathology of "habitual" abortion is the same as that of ordinary or single abortion.

Tables are shown—Table I contains the ascertained causes of abortion in seventy-seven women, II is an abridgement of I. Tables III and IV refer to thirty-one women who aborted habitually. Table V contrasts private with dispensary patients; there being certain "class"-distinctions. Turning to ætiology, Table V shows that more than half the cases are due to uterine congestion or disease, and only 9 per cent. to syphilis. Reflex causes are discussed; at most only 7 per cent. are truly reflex.

Syphilis is much more commonly the factor of premature birth than of abortion. Table VI shows that 77 per cent. of women subject to "habitual" abortion are either nulliparous gravidæ who begin their obstetric career by frequent abortions; or multiparous women who often terminate fecundity by repeated abortions.

Women who habitually abort are, as a class, very fertile.

"Habitual" abortion is highly amenable to treatment. Over 67 per cent. of the patients were delivered at term after cure of the cause of the "habit."

The study of abortion has received much attention. Next to the theories regarding the origin of life, specula-

tions with reference to the formation and preservation of early embryos have exercised alike the minds of philosophers, physicians, scientists, and surgeons. Latter-day pathology has explained and simplified many old-world beliefs. As any malign influence may prejudice adult longevity, so also may it affect embryonic existence; but, in the past, there has been too frequently a tendency to confuse concomitant with original causes of fœtal death.

If there has been any looking after the shadow rather than grasping the substance of the matter when abortion has been generally considered, how much truer is this with regard to habitual or recurrent abortion! One of our most intelligent and scientific authorities has written "A habit of abortion appears to be acquired in some cases, and abortions are repeated many times in succession without one being able to detect any very obvious cause." Tyler Smith, just quoted, did more than any other practical obstetrician in directing attention to the vastly important part played by the reflex nervous system in relation to pregnancy; yet, he here admits an indefinite unexplained class of cases, which are so obscure in etiology as to be unexplainable. So many others, before and since, have held the same views that, despite reputations for original research, it seems difficult to accept the belief that much original work has been devoted to a consideration of habitual abortion.

We have thus, so to put it, an agnostic school of theorists. Opposed to these are the realists, who find an explanation for every series of abortions, otherwise unaccounted for, by assuming that all such must be due to syphilis. It is asserted that the specific virus of syphilis may lurk undeveloped in the maternal system giving rise to no symptoms beyond repeated abortions; it is stated that lapse of time exhausts the potency of the poison, and that the "habit" of the abortion disappears in strict ratio to the non-potentiality of the disease.

Apparent difficulty in settling this question authoritatively is largely due to the fact that much laxity pervades

most writings on the subject. Distinctions between abortion and premature labour are seldom drawn. Interrupted fecundity and sterility are not infrequently regarded as synonymous. Generalisations deduced from large number of hospital or dispensary patients have obtained undue weight. The far more trustworthy data derived from a close personal supervision of private patients over a series of years have been but seldom utilised. The name of this or that leading obstetrician has been invoked in support of beliefs which have for long been only conventional. And thus our acquaintance with the clinical truths of the matter remains imperfect, and the pathological substructure even more so.

At first my observations were drawn from a series of 120 cases of abortion which occurred in private. Careful notes have been kept of each case; and so far as possible the personal and obstetric life-history of each individual rendered complete and accurate. But, finding that some of my observations while true, so far as they went, were not in harmony with those of others, I extended my list by including a number of dispensary patients, whose histories, so far as such histories can be accepted as accurate, may be taken as credible. There are undoubtedly some "class" differences as regards abortion. Ladies pregnant for the first time are more apt to abort than poor women who are primigravidæ. Other points of distinction will be found. So I have separated my private and dispensary patients, showing these differences in tabular form, and have afterwards taken the mean of both.

Definition.—Habitual or recurrent abortion is justified as a distinct term, when abortion has occurred three successive times. Some authors refuse to class any case as habitual abortion unless there is an entire absence of discoverable cause. They regard recurrent abortions due to disease as distinct from habitual abortion consequent on reflex irritations, &c. To assume that there is "a habit of abortion" without endeavouring to define the cause of the habit is simply evading the issue. We might as properly

refer disease and death to "habits" of contagion or infection or of non-vitality.

Furthermore, those who restrict the term "habitual" to such abortions as are unassociated with some abnormal or morbid bodily condition, and esteem such cases to depend on reflex causes, must omit from 70 to 80 per cent. of the very cases they would discuss.

It seems unscientific to assume that there is any halo of mystery surrounding habitual abortion. To understand the question aright we must dismiss all idea of "habit" apart from disease, malformation, or physiological incompetency.

If by any of these we mean "habit" well and good—if not, let us acknowledge that the cause is undiscovered, not non-existent.

We may not always be able to differentiate the cause, but to refer habitual abortion to "a peculiar irritable condition of the uterus, which renders the continuance of pregnancy a matter of difficulty irrespective of any recognisable cause" assumes that there is no cause, and is begging the question. In the most recent English work on abortion, Dr. Rentoul contents himself with the bald statement "habitual abortion does not as a rule threaten any very grave consequences to a woman. It, however, eventually tells on her system." Beyond this, no reference is made to the subject. As I believe that habitual abortion depends on disease, and not merely on chance, as is evidently held by some, it would be surprising if it did not tell on the system. In the majority of cases the system "tells" in producing habitual abortion.

The causes of recurrent abortion are practically the same as those of single abortion. If we outrage our digestion in such a manner that some congestion or inflammatory condition gravely affects the stomach, the liver, or the intestines, we have a different clinical result from that following a single attack of acute dyspepsia; but the difference is one only of degree, the pathology of the latter is identical with the pathology which primarily pertained

to the former. So in abortion, a simple single abortion may be followed by a series of similar mishaps, and the uterus may require many years to regain its pristine state of healthful vigour. Some cases of recurrent abortion, like cases of chronic dyspepsia, may be referred to abnormal conditions in remote organs. Thus we find that cardiac valvular disease, hepatic congestions, pulmonary affections, and renal disease predispose to abortion by influencing vascular pressure.

The *ætiology* of abortion is a long question, but if we eliminate predisposing and so-called exciting influences, and strive to consider the more immediate pathological factors we may profitably abbreviate the subject.

Premising that the principal influence which determined the abortion in each of the following cases is given, we find that in seventy-seven women, each of whom I have had under my constant supervision for years, the following causes were noted (see Table I).

TABLE I.—*Ascertained Causes in 77 Aborting Women, classified clinically.*

Class.	Cause.	No.	Per-centage.
1	Uterine atony from age	5	6·498
2	Ditto, with complications of intra-placental hæmorrhages	10	12·987
3	Accidental hæmorrhage	9	11·688
4	Uterine congestion with uterine displacement	7	9·090
5	Chronic endometritis or endocervicitis, and fissured cervix	11	14·285
6	Maternal dyscrasia as from anæmia, prolonged lactation, and phthisis	7	9·090
7	Ditto, with albuminuria (Bright's disease)	4	5·194
8	Ditto, with rheumatism	2	2·597
9	Maternal hyperpyrexia (pneumonia)	1	1·298
10	Reflex irritations (neuralgias, &c.)	7	9·090
11	Syphilis (affecting fœtus)	2	2·597
12	Extra-uterine { (*a*) Inflammation and adhesions 2; (*b*) Pyo-salpinx 1 }	3	3·896
13	Cystic degeneration of chorion	3	3·896
14	Hydrorrhœa, hydramnios	2	2·597
15	Fœtal deaths (non-syphilitic so far as could be ascertained)	4	5·195

A few words in explanation of this table are necessary. Class 1. Uterine atony from age or from overfertility implies that, beyond the actual or relative atonicity of the uterus and its annexa, no other cause could be found. In Class 2 there existed clear signs of hæmorrhage affecting the placenta, and in Class 3 the subjects were young and healthy women, in whom neither a history of ante-abortum congestion, nor post-abortum evidence of placental hæmorrhage was observed. In Class 4 the existence of displacement was a notable complication of congestion, and in Class 5 there were clear evidences of organic uterine disease. Some of the following classes will be noticed hereafter. Of Class 15 it may be said that fœtal death is not likely to happen without some uterine disturbance, and while doubtless some of the preceding classes would account in whole or part for these cases, yet, so far as could be ascertained, these abortions depended on the fœtal death as an originating cause, and not directly on the maternal influence.

Martin Saint-Ange sums up the whole question thus, "But all the pathology of abortion is summed up in these words, a pathological state of the membrane; consecutive changes in the chorionic villi; death of the fœtus; its expulsion from the uterine cavity at an indefinite period." This definition is in the main true; but it is still truer that the pathological state of the membranes is brought about by uterine congestion. Whitehead estimated uterine diseases as causative in no less than 275 of 378 cases, *i. e.* 72 per cent. Of congestion he wrote "it appears as the immediate cause in one out of every twenty-five cases, though I am inclined to believe its real average is much higher."

As Priestley has shown, Whitehead made far too much of the association of leucorrhœa and abortion; it is fair to infer that his 72 per cent. of women suffering from probable uterine disease was an over estimate. But I agree with Whitehead's assertion that "the real average of uterine congestion as an immediate cause is much higher" than 4 per cent.

To re-state the figures in the preceding table we group allied classes and find—

TABLE II.—*Ascertained Causes in 77 Aborting Women, classified pathologically.*

Classes of table.	Forming	Due to	No. of cases.	Per-centage.
1, 2, 3, 4, 5	Class I	Congestion	42	54·546
6, 7, 8	„ II	Anæmia	13	16·885
9	„ III	Anaërobic influence . .	1	1·298
10	„ IV	Nervous or reflex . . .	7	9·090
11	„ V	Specific disease of fœtus .	2	2·597
12 (*a* and *b*)	„ VI	Extra-uterine local affections	3	3·894
13, 14	„ VII	Diseases of fœtal membranes	5	6·493
15	„ VIII	Intra-uterine death, without signs of syphilis . .	4	5·194
1—15	Classes I—VIII		77	100

It is foreign to the subject to discuss this table exhaustively, suffice it to point out that 54·5 per cent. were attributed to *congestion*, nearly 17 per cent. to anæmia, only 9·090 to reflex influences, and the extremely low figure of 2·597 to specific disease which was absolutely unmistakeable.

Let us now turn again to the subject of habitual abortion, and by a comparison of the tables just considered with those below it will be evident that the pathology of the whole is the pathology of the more particular question.

These Tables III and IV refer to thirty-one women who were habitual aborters; of this number 14 were private patients in comfortable circumstances; 17 were dispensary patients. It is difficult to ascertain the proportion of habitual aborters to simple aborters. Hegar has estimated that an early abortion occurs to every eight or ten term births, Whitehead puts it as one to seven, Priestley as one to four and a-third. This is a very high estimate which it is difficult to corroborate or contradict. Among

TABLE III.—*Fourteen Private Patients.*

Case.	Age at marriage.	Para.	Abortions.		Premature delivery.	Term deliveries.			Probable cause.	Remarks.
			Before term delivery.	Total abortions.		After last abortion.	Before abortion.	Total term deliveries.		
4	22	II	0	9	2	0	2	4	Congestion, reflex	No specific evidence. One child born at 6 months and 10 days survived, now aged 10 years.
12	19	0	3	3	0	4	0	4	Endometritis	Metrorrhagia, leucorrhœa.
15	28	0	3	4	0	3	0	4	Uterine congestion	One abortion, with violent hæmorrhage, after first term delivery.
16	20	M.	0	3	0	1	8	9	Uterine congestion	Violent hæmorrhage with two abortions.
22	21	M.	0	3	0	0	7	7	Gonorrhœal salpingitis	One tube first affected, then double ovaritis, followed by perimetritis.
23	20	0	4	4	0	3	0	3	Reflex	No disease of uterus.
24	32	0	3	3	0	3	0	2	Rheumatic endometritis	History of several acute attacks. No cardiac disorder.
43	23	I	0	4	0	1	1	2	Chronic endometritis; fissured cervix	Uterine trouble constantly since birth of first child, aged 4.
48	22	0	3	3	0	1	0	1	Uterine congestion, reflex	No discernible cause.

									(?)	abortion, no treatment; then two term deliveries.
56	24	M.	0	3	0	1	8	9	Endometritis	Children scrofulous; two still-born.
66	21		0	3	0	0	1	1	Specific (paternal)	Patient perfectly healthy. Threatened to abort at second month of first pregnancy.
69	17	M.	0	5	1	1	6	9	Retroflexion; chronic metritis; reflex	—
75	19	0	5	5	1	2	0	2	Uterine congestion; retroflexion	No history or signs of specific disease.
Women 14 { 0-paræ...6, I-paræ...2, II-paræ...1, M.-paræ...5			21 to 6 women.	57	4	22	41	67*	Causes { Uterine congestion or disease . 8; Reflex . . . . 3; Rheumatism . . . 1; Specific . . . . 1; Gonorrhœal salpingitis . . 1	

* The fecundity is clearly understated; as over 40 per cent. of the patients will probably continue fertile.

TABLE IV.—*Seventeen Dispensary Patients.*

Case.	Age at marriage.	Para.	Abortions.		Premature delivery.	Term deliveries.			Probable cause.	Remarks.
			Before term delivery.	Total abortions.		After last abortion.	Before abortion.	Total term deliveries.		
XI	Over 40	I	0	3	0	0	1	1	Declining fecundity	Married when over 40.
XLV	19	M.	0	4	0	1	6	7	Accidental hæmorrhage; reflex	Uterine fibroid. First abortion attributed to fall downstairs; second abortion attributed to fright, drunken disturbance.
XLVIII	15	M.	0	4	0	1	9	10	Endo-cervicitis; metritis	Incontinence of urine for last three or four years.
LXIII	19	M.	0	3	1 after 1st child	0	2	2	Syphilis	Ulcerated throat three years ago. Husband and second and third child syphilitic.
LXX	14	M.	0	3	0	0	4	4	Congestion; accidental hæmorrhage; uterine fibroid	First abortion, fall downstairs; second, severe exertion. Uterine fibroid.
LXXVI	19	M.	0	3	0	1	12?	13	Congestion; chronic perimetritis	Last child when 43. Urethral caruncle, which was removed.
LXXVIII	25	M.	0	3	0	1	5	6	Reflex	Floating kidney. Menopause at 40, after last child.
LXXIX	21	M.	0	6	0	1	5	11	Reflex	Polypus removed seven years ago. Last child at 45. Paralytic

									displacement; reflex	first delivery. Last child when 37. Last abortion at 41.
CII	15	0	6	8	0	7	0	9	Congestion; reflex	No specific evidence. Early marriage.
CXXVI	25	M.	0	3	0	0	?	12	Declining fecundity	Last child at 44. Last abortion at 48.
CXXVII	20	0	5	5	2 at 7 and 8 months	5	0	5	Syphilis	All children with snuffles, and sores on buttocks; one had fits. Husband had phthisis and Bright's disease. Patient aged 31, syphilis. Last child at 36.
CXXXVI	18	II	0	4	0	3	2	5	Reflex	Thinks abortion was due to fright; cannot recollect facts.
CXL	26	0	1	5	0	1	0	7	Rheumatism; endometritis	History of rheumatism. Had angular curvature of spine. Fifth child spina bifida.
CXLVII	20	I	0	7	0	1	1	7	Endometritis; prolapsus uteri, &c.	No specific evidence. Cervix deeply fissured. Inflammation of womb three years ago and recently.
CLI	20	0	1	7	0	0	0	5	Endometritis	Dysmenorrhœa and metrorrhagia. Ulceration of cervix. No specific evidence.
LXXXIII	18	II	0	3	0	0	2	2	Uterine displacement, &c.	Children died of "consumption of bowels."

Women 17 { 0-paræ...4 I-paræ ..2 II-paræ...2 M.-paræ...9 }	13 to 4 women.	78	3 are syphilitic.	22*	Uncertain, about 60.	115*	Causes { Uterine congestion or disease . 9 Reflex . . . . 5 Rheumatism . . . 1 Specific . . . . 2 }	

Note.—With exceptions of XI, married at 40; LXX, at 14; and CII, at 15, being extremes, all the women were married at favourable ages for fecundity. * *Vide* note to Table III.

private patients I find habitual or thrice consecutively recurring abortion constitutes nearly 15 per cent. of the whole. I have not been able to obtain trustworthy facts regarding the average in dispensary patients. From the data given in the Tables III and IV it will be noted that in habitual or recurrent abortion, just as in single or once-repeated abortions, *uterine congestion*, or this with uterine disease, occupies the first place.

TABLE V.—*Ascertained Causes in "Habitual" Abortion amongst Private and Dispensary Patients, classified pathologically.*

Class.	Private patients, p.c.	Dispensary patients, p.c.	Average p.c.
I. Congestion, &c. . . .	57·143	52·942	55·042
II. Anæmia and rheumatism .	7·143	5·881	6·512
III. Reflex	21·429	29·412	25·420
IV. Specific (of fœtus) . .	7·143	11·765	9·854
V. Extra-uterine (gon. tube) .	7·143	—	3·172

The next deduction is that nearly one fourth of the cases were attributed to *reflex causes*. Now could we arrive at nothing nearer than this we should still remain believers in Dr. Playfair's "peculiar irritable condition of the uterus without discoverable uterine disease, which renders the continuance of pregnancy a matter of difficulty."

For reasons already indicated, I prefer to restrict myself to the first column of Table V—the private patients. And as these cases demand some special notice, let a brief account of one illustrate the question. In February, 1883, I attended a healthy lady, aged twenty-three, for abortion, who, having been married nearly three years, had aborted on three former occasions. She had never been ill, her husband was, and always had been, healthy. I

could ascertain no cause for her repeated abortions, which usually happened about the end of the third month. After convalescence I examined her carefully. The left ovary was tender on deep pressure, but was not sensibly enlarged. The patient was treated by viburnum continuously for some months, latterly only at the molimen. She had pregnancy sickness in September, and was delivered at full term for the first time on April 6th, 1884. Another case which I at one time regarded as simply reflex proved to be due to rheumatism. This lady aborted three times after marriage; after being under treatment for a severe attack of rheumatism she became pregnant, and had successful term-deliveries. There are cases which it is extremely difficult, if not impossible, to connect with any local or constitutional cause, but these are very few, assuredly not more than 7 per cent. In these the anxiety and dread of miscarrying at some special time unquestionably prejudices the normal course of pregnancy. And surely it is permissible inferentially to conclude that in these there is some distinct pathological cause, which more perfect knowledge of the relationship between the nervous system and the pregnant uterus may yet discover.

The next point deserving notice is the relatively very small percentage attributed to *syphilis*. Table V shows less than 10 per cent. due to specific disease. Syphilis is, according to Priestley, "perhaps the most potent of all poisons in producing intra-uterine death at all stages, and this whether the disease exists in the male or female parent." This observation coincides with that of Carl Ruge, who states that 83 per cent. of intra-uterine deaths are due to specific influence.

I believe the doctrines of syphilitic influence in abortion have been stated in far too general terms. It is incontrovertible that the ovum may perish in consequence of enfeeblement of the paternal or maternal system from any cause. Should the ovum contain germs of specific disease, or should the uterus be syphilised, embryonic death is probable, and abortion follows; but there are many

cases recorded in which the mother became syphilised after impregnation and healthy full-time children were born. In such cases the original cellular constitutions of the embryos have been strong enough to resist the disease; and further, so long as the placenta and membranes remain unaffected, there will be additional hindrances.

The important point is that, unless the uterus is gravely syphilised, premature delivery is more probable than abortion.

Priestley records that in 314 cases of premature delivery, 15·7 per cent. were attributed to syphilis. In 82 abortions detailed by Johnston and Sinclair, "in one it was ascribed to syphilis, *i. e.* 1·21 per cent."

Whitehead's observations regarding the obstetric histories of twenty-eight women who were distinctly syphilitic, confirms the belief that syphilis is less likely to cause abortion than is supposed. He found among these women twenty-five deliveries of dead children before the sixth month; most of these were, properly speaking, premature deliveries, not abortions. There were five premature living children, and twenty-two dead and forty-five living children at term. Even were we to regard all the deliveries before the completion of the sixth month as abortions, we should have only twenty-five abortions to seventy-two premature and term deliveries, *i. e.* about 1 to 3. Of the total fifty children born alive, forty-five showed evidences of syphilis.

The current beliefs are somewhat as follows:—Given a healthy woman married to a husband who prior to marriage has had syphilis; to begin with she may have a healthy child at term, or at worst an infant showing slight signs of specific disease, then abortion after abortion or premature delivery of a dead child, frequently repeated till the disease "exhausts itself," when a weakly, possibly finally a healthy, child, is produced. I admit that I have known examples of such. But if it be true that (1) syphilis is the most common cause of habitual abortion; and (2) generally a healthy woman married to a man suffering

from latent syphilis will produce one child before gestation, is interrupted by the disease, it should be found that uniparous mothers were most prone to become "habitual" aborters; this is not so. Of the Dispensary patients 11·7, and of private patients 14·286, or a mean of 13 per cent. only, were uniparous.

Abortion is only truly "habitual" from syphilis when either the uterus is chronically diseased therefrom, or when the parental procreative power is permanently affected. Syphilis is one factor, not the only factor, of habitual abortion.

Until comparatively a short time ago *rheumatism* as a cause of repeated abortion was hardly recognised. My personal observation corroborates the opinions advanced by Halliday Croom, that rheumatic endometritis has a considerable influence in determining abortion.

Gonorrhœa is more likely to cause sterility, but so long as salpingitis is single we may have conception, and the chronic perimetritis will probably determine abortion. One case is highly illustrative. A lady contracted gonorrhœa from her husband in 1881; tubal and ovarian inflammation followed; she had a clear watery discharge as from hydrosalpinx, so we may infer that one tube escaped purulent inflammation. She then seemed to recover, became pregnant, and aborted in August, 1882. After her miscarriage she had recurrence of tubal disturbance, the uterus became retroverted and partially fixed. In March, 1884, she was under treatment for oophoritis and metrorrhagia; she became pregnant in July, and aborted on October 11th. In January, 1885, she was again under treatment (after a doubtful abortion) for perimetritis, and in the following April she was found to have a retroverted uterus and a large, tender, prolapsed ovary. She has not been pregnant since.

Schroeder asserts that multiparæ are far more apt to abort than primiparæ, and puts the figures as 23 to 3.

Multiparæ certainly have the highest percentage, but probably not nearly so high as is mentioned.

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Whitehead's observations regarding the obstetric histories of twenty-eight women who were distinctly syphilitic, confirms the belief that syphilis is less likely to cause abortion than is supposed. He found among these women twenty-five deliveries of dead children before the sixth month; most of these were, properly speaking, premature deliveries, not abortions. There were five premature living children, and twenty-two dead and forty-five living children at term. Even were we to regard all the deliveries before the completion of the sixth month as abortions, we should have only twenty-five abortions to seventy-two premature and term deliveries, *i. e.* about 1 to 3. Of the total fifty children born alive, forty-five showed evidences of syphilis.

The current beliefs are somewhat as follows:—Given a healthy woman married to a husband who prior to marriage has had syphilis; to begin with she may have a healthy child at term, or at worst an infant showing slight signs of specific disease, then abortion after abortion or premature delivery of a dead child, frequently repeated till the disease "exhausts itself," when a weakly, possibly finally a healthy, child, is produced. I admit that I have known examples of such. But if it be true that (1) syphilis is the most common cause of habitual abortion; and (2) generally a healthy woman married to a man suffering

from latent syphilis will produce one child before gestation, is interrupted by the disease, it should be found that uniparous mothers were most prone to become "habitual" aborters; this is not so. Of the Dispensary patients 11·7, and of private patients 14·286, or a mean of 13 per cent. only, were uniparous.

Abortion is only truly "habitual" from syphilis when either the uterus is chronically diseased therefrom, or when the parental procreative power is permanently affected. Syphilis is one factor, not the only factor, of habitual abortion.

Until comparatively a short time ago *rheumatism* as a cause of repeated abortion was hardly recognised. My personal observation corroborates the opinions advanced by Halliday Croom, that rheumatic endometritis has a considerable influence in determining abortion.

Gonorrhœa is more likely to cause sterility, but so long as salpingitis is single we may have conception, and the chronic perimetritis will probably determine abortion. One case is highly illustrative. A lady contracted gonorrhœa from her husband in 1881; tubal and ovarian inflammation followed; she had a clear watery discharge as from hydrosalpinx, so we may infer that one tube escaped purulent inflammation. She then seemed to recover, became pregnant, and aborted in August, 1882. After her miscarriage she had recurrence of tubal disturbance, the uterus became retroverted and partially fixed. In March, 1884, she was under treatment for oophoritis and metrorrhagia; she became pregnant in July, and aborted on October 11th. In January, 1885, she was again under treatment (after a doubtful abortion) for perimetritis, and in the following April she was found to have a retroverted uterus and a large, tender, prolapsed ovary. She has not been pregnant since.

Schroeder asserts that multiparæ are far more apt to abort than primiparæ, and puts the figures as 23 to 3.

Multiparæ certainly have the highest percentage, but probably not nearly so high as is mentioned.

I have noted that primigravidæ may be ranked next to multigravidæ, and indeed, in habitual abortion, in almost equal numbers. Primigravidæ who are nulliparous show a percentage of 33 as compared with 44·320 per cent. multiparous "habitual" aborters.

The under-noted table shows the exact proportion.

TABLE VI.—*Relation of Fertility to "Habitual" Abortion.*

	Private patients.	Dispensary patients.	Both classes.
0-paræ . .	42·857	23·529	33·190
I-paræ . .	14·286	11·70	13·030
II-paræ . .	7·143	11·70	9·460
Multiparæ .	35·714	52·941	44·320
			77 p.c. 0- or multiparæ.

This table seems contradictory to several fundamental beliefs. Matthews Duncan states, "no cause of abortion can be compared with age in extent and power." Spiegelberg, on the other hand, asserts "it is certainly not true that too young or too advanced age is a cause; if abortion takes place in such women it is due to disease of the reproductive apparatus." This contradiction is more apparent than real. Duncan's dictum implies physiological incapacity from immaturity, or disease as a result of advanced uterine age. Spiegelberg regards disease of the reproductive apparatus as meaning inadequacy for fulfilment of their functions.

In the cases referred to, we have very few women whose age-influence can be held to have determined the recurrent abortions. All the private patients were married at a favourable age, yet the patients giving the

largest percentage in the table had three or more abortions before a single term delivery. Of the Dispensary patients one was married at forty, and had one child before three abortions; one was married at fourteen, and had four children before miscarrying; and a third married at fifteen, had six abortions, then two children, followed by two abortions, and finally seven more children at term.

Experience demonstrates that fecundity is often terminated by one or more abortions. But it is needful to find an explanation for habitual abortion occurring in so high a proportion in nulliparous women. In the first column of Table VI, 42·857 were nulliparous women married at favourable ages and in good circumstances. It is probable that, in some such individuals, abortions which happen in early married life might give rise to much concern and anxiety, and that several cases of single abortion might follow in later married life which are unreported.

If a young married woman begins her obstetric history with an abortion, there must be some uterine reason. Inquiry shows that such women have commonly suffered from dysmenorrhœa before marriage, which indicates a previous tendency to endometric engorgement and probable uterine displacement or other abnormality. Besides, there are not a few ladies who are not altogether sorry to be free from the cares of maternity in early married life, and who presumably may be less careful of themselves than is wise, until age and wisdom concurrently increase. Whatever the explanation may be, it is practically certain that many abortions occur in young women prior to term-confinements, which are never tabulated. My general statistics of abortion in primiparæ show that 72 per cent. had one, 8 per cent. two, and 20 per cent. three or more miscarriages before term delivery.

Habitual abortion in multiparæ is frequently a consequence of post-partum pelvic or uterine disease. Subinvolution, chronic endometritis, or cervical affections are the most common causes. There is unquestionably a special proclivity to abort towards the end of procrea-

tive capability; after abortion, acquired sterility, the consequence of uterine or tubal affections, lessens the relative number of abortions.

Hæmorrhage of an alarming character is more usual in multiparous aborters than in the other classes.

The *fertility of habitual aborters* is high. Dispensary patients show average of 4·580 abortions, with 6·760 term deliveries; private patients averaged 4·714 abortions, 4·428 term deliveries. We have to add a small percentage, ·285, of premature deliveries; and an unknown quantity for subsequent term deliveries, the probable fecundity of several not being exhausted. In these cases it is noteworthy that no sensational number of abortions to one individual unduly increases the average. Young has recorded one instance of thirteen, Charpentier eighteen, and Schultze twenty-two successive abortions to individual cases. One of my patients had nine abortions with two premature and two living children. So far as could be ascertained, she had neither specific nor other recognisable uterine disease.

Habitual abortion is thoroughly amenable to treatment. Of my cases, over 64 per cent. have had term deliveries after "cure of the habit." Treatment has been more successful in private patients, these giving 71·429 to 58·823 dispensary cases. Sterility is accounted for by diminished fecundity from age in three cases, by syphilis in two, chronic uterine disease in four, gonorrhœal tubal disease in one, and fibro-myoma of uterus in one. This gives eleven cases or 35·484 sterile to 64·516 productive women.

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Dr. JOHN PHILLIPS asked Dr. Napier whether he intended to include under "reflex," those cases in which no apparent cause could be discovered to cause the habitual abortion. Two such cases had recently been under his care, and whether by coincidence or not, free administration of *Viburnum prunifolium* had resulted in the patients going to term. Dr. Phillips was anxiously watching another of similar nature at the present time.

Dr. AMAND ROUTH alluded to paternal albuminuria as a cause of recurrent abortion.

Dr. HANDFIELD JONES thought that the author of the paper had overlooked the importance of cardiac incompetence as a cause of repeated abortion. A failing left ventricle would lead to sluggish circulation in the uterus, and consequent extravasations of blood between the membranes and muscular wall of the uterus. The proof of the correctness of this view lay in the good results obtained by treatment directed to stimulating the action of the heart. Certainly the term "habit of abortion" was unscientific, as in all such instances a true pathological cause was to be found, and on its removal depended the cure of the disease.

Dr. LEITH NAPIER, in reply, remarked that he had wholly avoided discussing treatment, yet he might mention parenthetically, in answer to Dr. Phillips, that he had prescribed viburnum for several years, and regarded it with favour. Dr. Amand Routh had mentioned the influence of albuminuria. Maternal albuminuria was dealt with in the tables as a separate class. Paternal albuminuria was believed to induce low cellular vitality of the embryo, and thus favour fœtal death and abortion. These cases were included in Class 8 of Table II. Dr. Napier fully recognised the connection between chronic cardiac disease and abortion. He had read Dr. Handfield-Jones's very interesting contribution, and had included it in the bibliography accompanying his paper. Still he was inclined to class the true pathology of these cases under congestion, the well recognised congestion accompanying anæmia.

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